



State of California
California Environmental Protection Agency
AIR RESOURCES BOARD

**Report on Ambient Air Monitoring
For Methomyl and Carbaryl
In Fresno, Tulare and Kings Counties during July and August 2007**

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Monitoring Report Approval

Report Title: Report on Ambient Air Monitoring For Methomyl and Carbaryl in Fresno, Tulare and Kings Counties During July and August 2007

Project Lead: Neil Adler, Air Pollution Specialist

Approval: The following monitoring report has been reviewed and approved by the Monitoring and Laboratory Division.

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Executive Summary

Report on Ambient Air Monitoring For Methomyl and Carbaryl in Fresno, Tulare and Kings Counties During July and August 2007

At the request of the Department of Pesticide Regulation (DPR), the Air Resources Board (ARB) conducted ambient air monitoring for Methomyl and Carbaryl in Fresno, Tulare and Kings Counties during July and August 2007. These products are applied by aerial application or ground spraying and are used as pesticides to control a wide range of insects including thrips, bugs, aphids, beetles, moths, diptera and ant-hymenoptera. Monitoring was conducted to coincide with the use of methomyl as a selective pesticide on alfalfa and corn for human consumption.

A total of 211 samples (182 ambient air samples plus 29 field quality control samples), were collected from July 23, 2007 to August 31, 2007. Twenty four (24) hour integrated ambient air samples from six different locations throughout Fresno, Tulare and Kings Counties were collected by staff of the Special Purpose Monitoring Section. The sampling locations were chosen for their proximity to both known areas of methomyl/carbaryl applications and populations.

Samples were collected by passing a measured volume of ambient air at 2.0 liters per minute (Lpm), through XAD-2 resin tubes, continuously for 24 hours. The tubes were protected from direct sunlight and supported about 1.5 meters above the roofline or 1.5 meters above the ground in an open, secured area meeting ARB siting criteria. At the end of each sampling period, the tubes were capped and placed in culture tubes with an identification label affixed. The sampling information and exact operating interval were recorded in the logbook.

Subsequent to sampling, the sample tubes were transported on dry ice to the ARB Monitoring and Laboratory Division (MLD) for analysis. The samples were stored in the freezer or extracted/analyzed immediately. During the ambient air monitoring, one tube is used to collect methomyl and carbaryl simultaneously.

Sample extraction is a two step process involving an initial extraction using 50% acetonitrile and 50% water (50%ACN/H₂O) and an ultrasonic bath to remove the methomyl followed by the addition of more acetonitrile to facilitate the extraction of carbaryl. Sample analysis is performed using a high performance liquid chromatograph with a mass spectrometer (LC/MS) in the selected ion-monitoring mode (SIM).

- Reported results for methomyl ranged from less than the MLD's established method detection limit (MDL) of 0.3 ng/m³ to a maximum of 8.8 ng/m³. Five sample results were greater than the Limit of Detection (LOD) of 0.3 ng/m³ and the Estimated Quantitation Limit (EQL) of 1.5 ng/m³. These were all from the Mendota monitoring site.
- Reported results for carbaryl were less than the MDL of 20 ng/sample (<0.68 ng/m³).

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1.0 Introduction

At the request of the California Department of Pesticide Regulation (DPR) (January 29, 2007 Memorandum, Warmerdam to Witherspoon), the Air Resources Board (ARB) staff conducted sampling of airborne concentrations of methomyl and carbaryl in Fresno, Kings and Tulare Counties. Ambient air monitoring was performed over a period of six weeks. Monitoring was conducted to coincide with the use of methomyl as a selective pesticide on alfalfa and corn for human consumption.

182 ambient air samples plus 29 field quality control samples were collected at six (6) different monitoring sites in Fresno, Kings and Tulare Counties from July 23, 2007 to August 31, 2007. This monitoring was performed under the requirements of AB 1807/3219 (Food and Agricultural Code, Division 7, Chapter 3, Article 1.5) which requires the ARB, "...to document the level of airborne emissions...of pesticides that may be determined to pose a present or potential hazard...", when requested by the DPR.

The ARB had previously conducted methomyl ambient air monitoring studies in Fresno County in 1987.

2.0 Sampling Sites

The ambient air monitoring sites were located in areas where there is high use of methomyl and carbaryl and where environmental justice factors identified by DPR are highest. These factors indicated that the communities of Huron, Mendota and Parlier in Fresno County, and Richgrove in Tulare County, and Kettleman City in Kings County, plus the urban background site as monitoring locations.

Refer to **Figure 1, Proximity of the Communities to Methomyl Applications in 2004 and 2005** and **Figure 2, Proximity of the Communities to Carbaryl Applications in 2004 and 2005**. ARB staff, in consultation with DPR, selected these sampling sites based upon several factors:

- Historical use of methomyl and carbaryl as indicated by these use-maps.
- Proximity of sampling site to agricultural fields.
- Presence or proximity of residents, students, or populations in general to fields.
- Considerations for both staff accessibility and security of the sampling equipment.
- Maximum practical compliance with established siting criteria.

The use maps for methomyl/carbaryl suggested that ambient monitoring should occur in Fresno, Kings and Tulare Counties during the months of June through August. Six sampling sites (five air monitoring sites and one urban background site) were selected in relatively high-population areas or in areas frequented by people (e.g., schools or school maintenance buildings). In addition to the primary sample, one (1) co-located sample was collected each week at each sampling location.

These sites are indicated in **Figure 3, Methomyl/Carbaryl Sampling Locations**.

The urban background site is located at:

Air Resources Board's Air Monitoring Station - **Figure 4, Urban Background Site**
3425 N. First St.
Fresno, CA. 93726
(559) 228-1825 FAX (559) 228-0116 GPS: N 36° 46.906', W 119° 46.390'

The ambient monitoring sites in the Fresno County communities are located at:

Huron Middle School - **Figure 5, Huron Middle School**
16875 Fourth St.
Huron, CA. 93234
(559) 945-8482 FAX (559) 945-8482 GPS: N 36° 11.948', W 120° 06.066'

Mendota School Bus Barn - **Figure 6, Mendota School Bus Barn**
1993 Belmont
Mendota, CA. 93640
(559) 655-3433 FAX (559) 655-4299 GPS: N 36° 44.760', W 120° 22.996'

Parlier Junior High School - **Figure 7, Parlier Junior High School**
1200 East Parlier Ave.
Parlier, CA. 93648
(559) 646-1660 FAX (559) 646-1633 GPS: N 36° 36.722', W 119° 32.238'

The ambient monitoring site in the Tulare County community is located at:

Richgrove School - **Figure 8, Richgrove School**
20908 Grove Drive
Richgrove, CA. 93261
(661) 725-2427 FAX (661) 725-5772 GPS: N 35° 48.035', W 119° 06.397'

The ambient monitoring site in the Kings County community is located at:

Kettleman City High School - **Figure 8, Kettleman City School**
707 General Petroleum Ave
Kettleman City, CA. 93239
(559) 386-9081 FAX (559) 386-0207 GPS: N 36° 00.471', W 119° 57.667'

At each sampling site, four plus one collocated 24-hour samples were collected per week during the sampling period. ARB personnel collected the samples over a six-week period from July 23 through August 31, 2007. The 24-hour samples were taken Monday through Friday (5 samples/week per site) at the flow rates of 2.0 Lpm.

The background site is chosen for its greater relative distance from agricultural areas. Photographic images of each of the following monitoring sites are presented in **Appendix A:**

Figure 1

Proximity of the Communities to Methomyl Applications in 2004 and 2005.

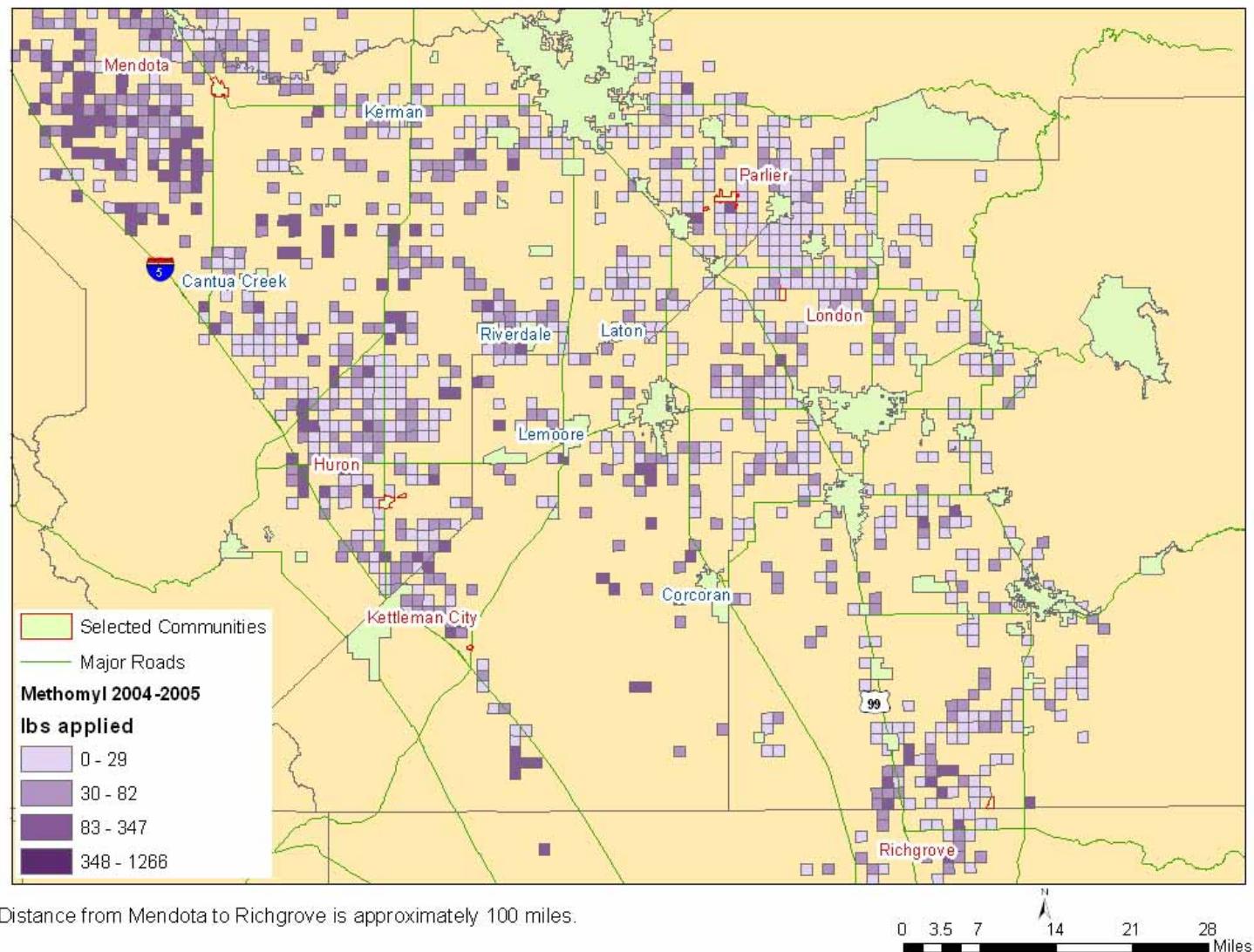


Figure 2

Proximity of the Communities to Carbaryl Applications in 2004 and 2005.

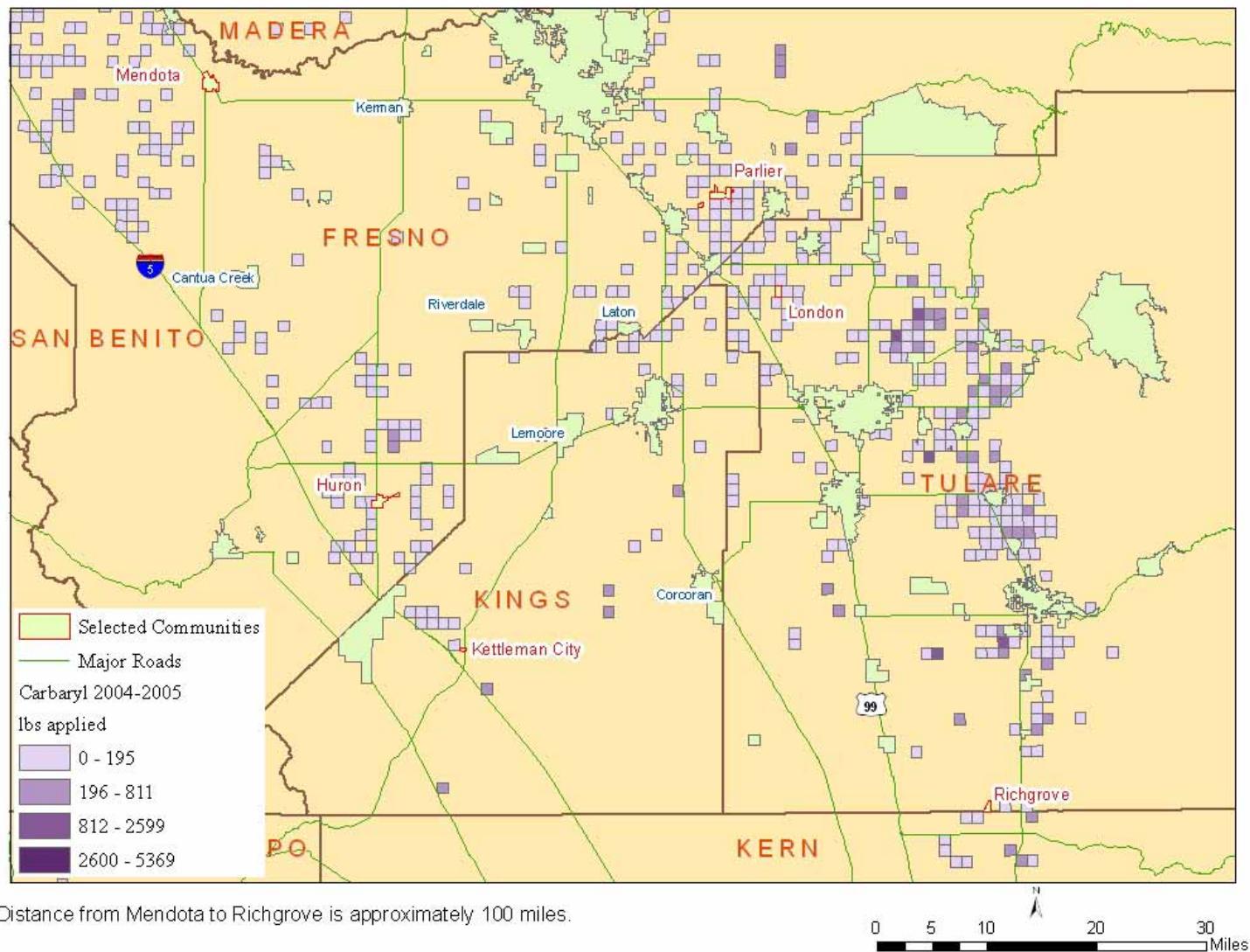


Figure 3
Methomyl/Carbaryl Sampling Locations

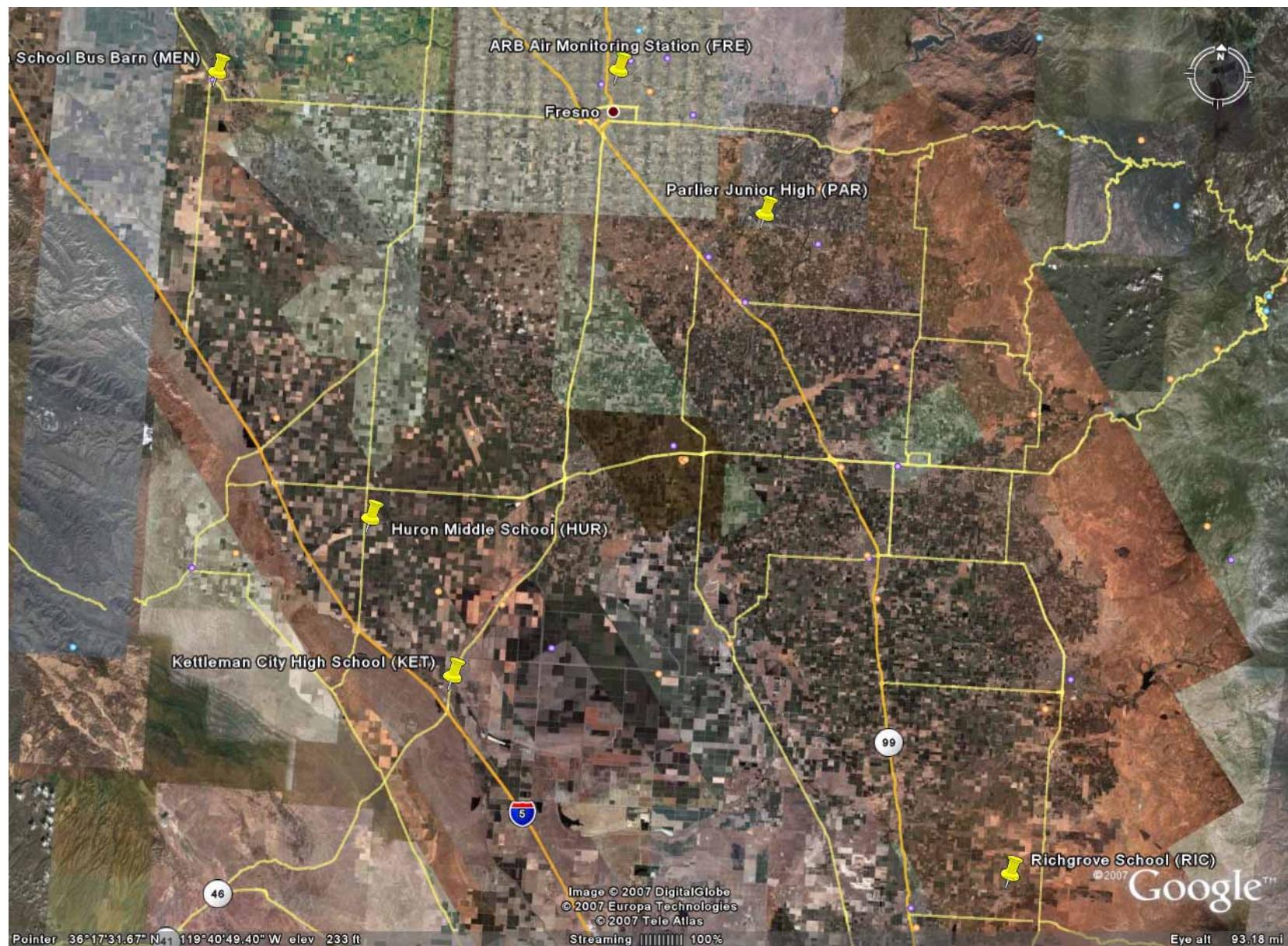


Figure 4a

Urban Background Site

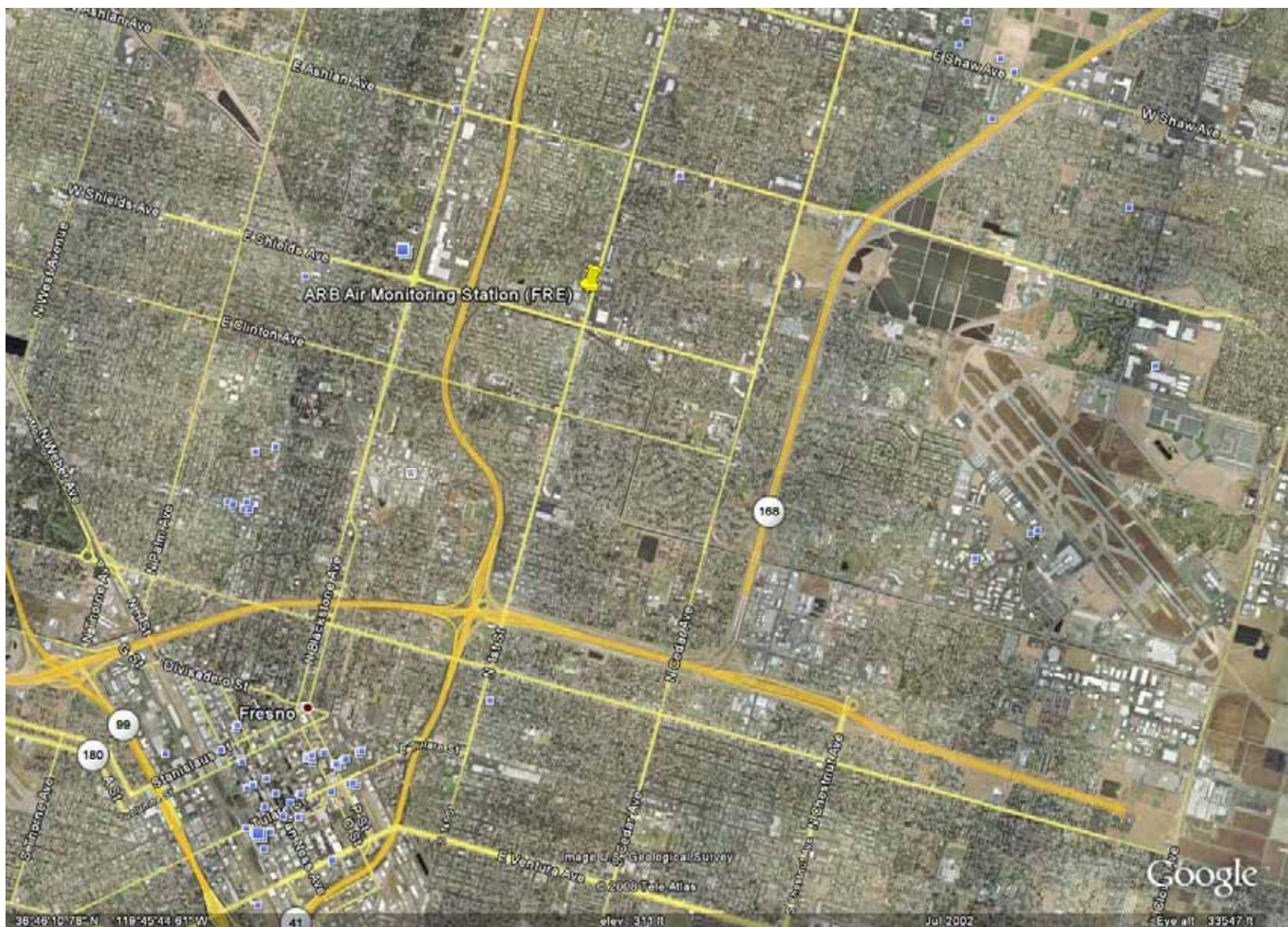


Figure 4b
Closer View of Urban Background Site

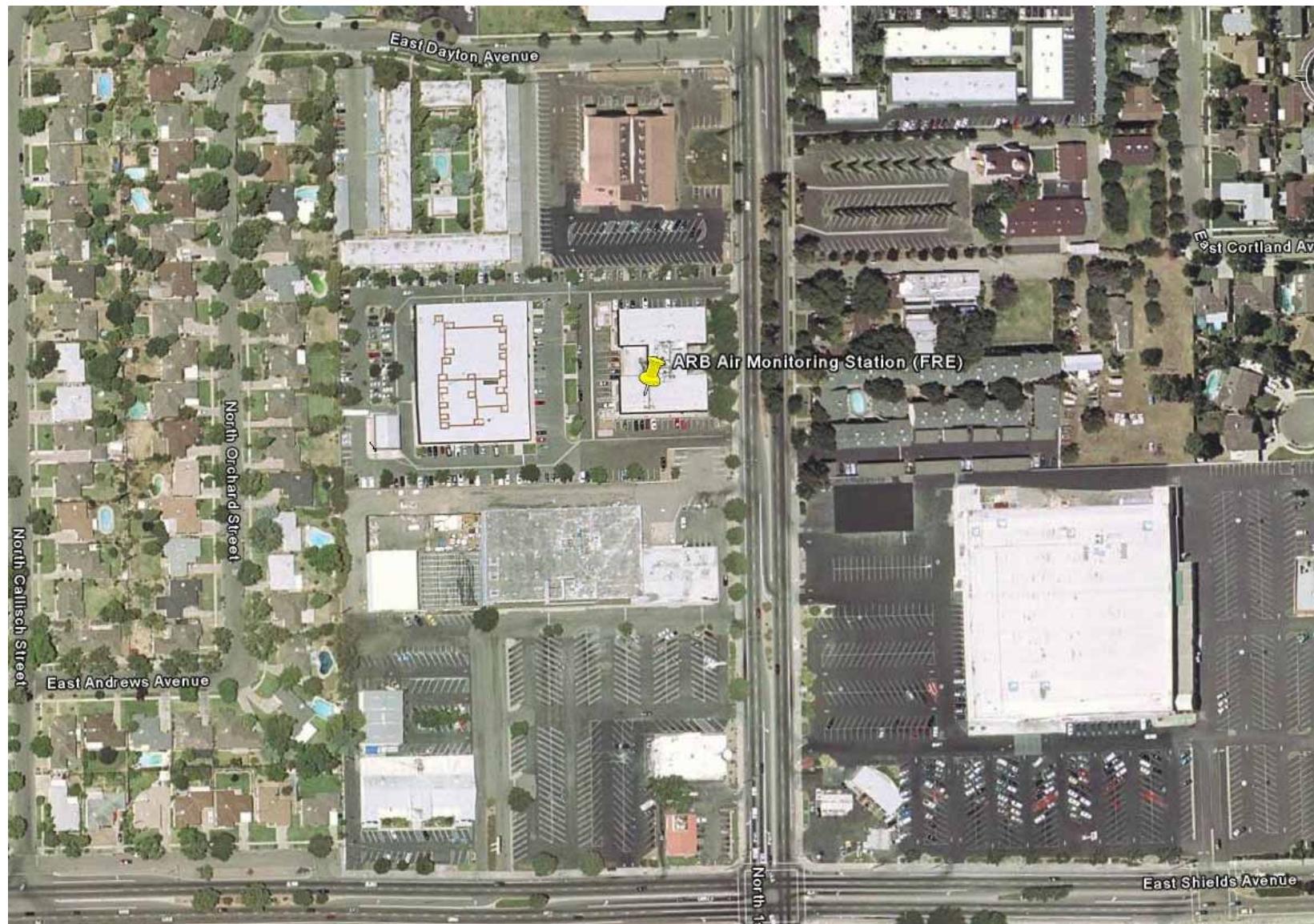


Figure 5a

Mendota School Bus Barn



Figure 5b
Closer View of Mendota School Bus Barn



Figure 6a
Parlier Junior High School

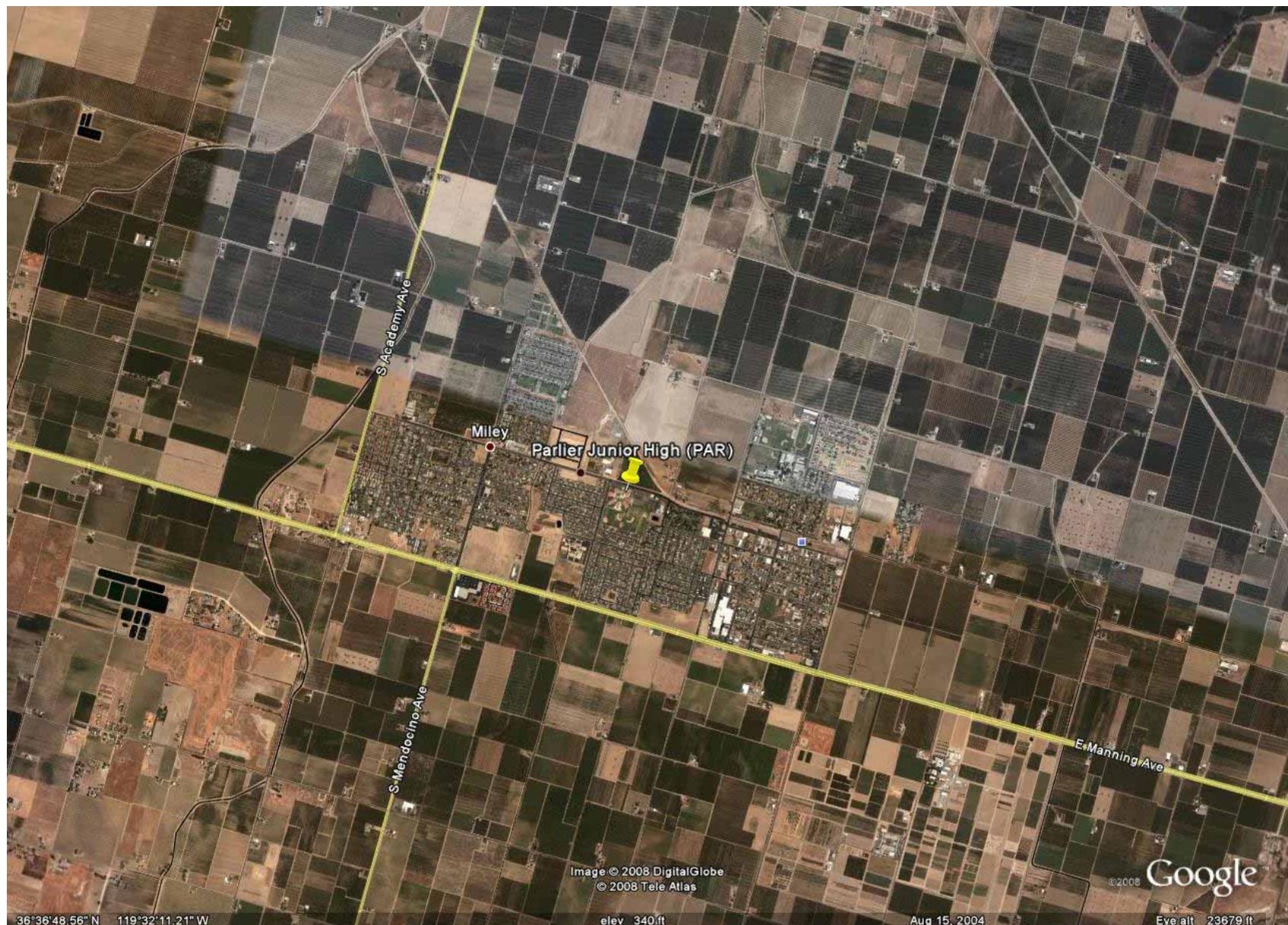


Figure 6b
Closer View of Parlier Junior High School

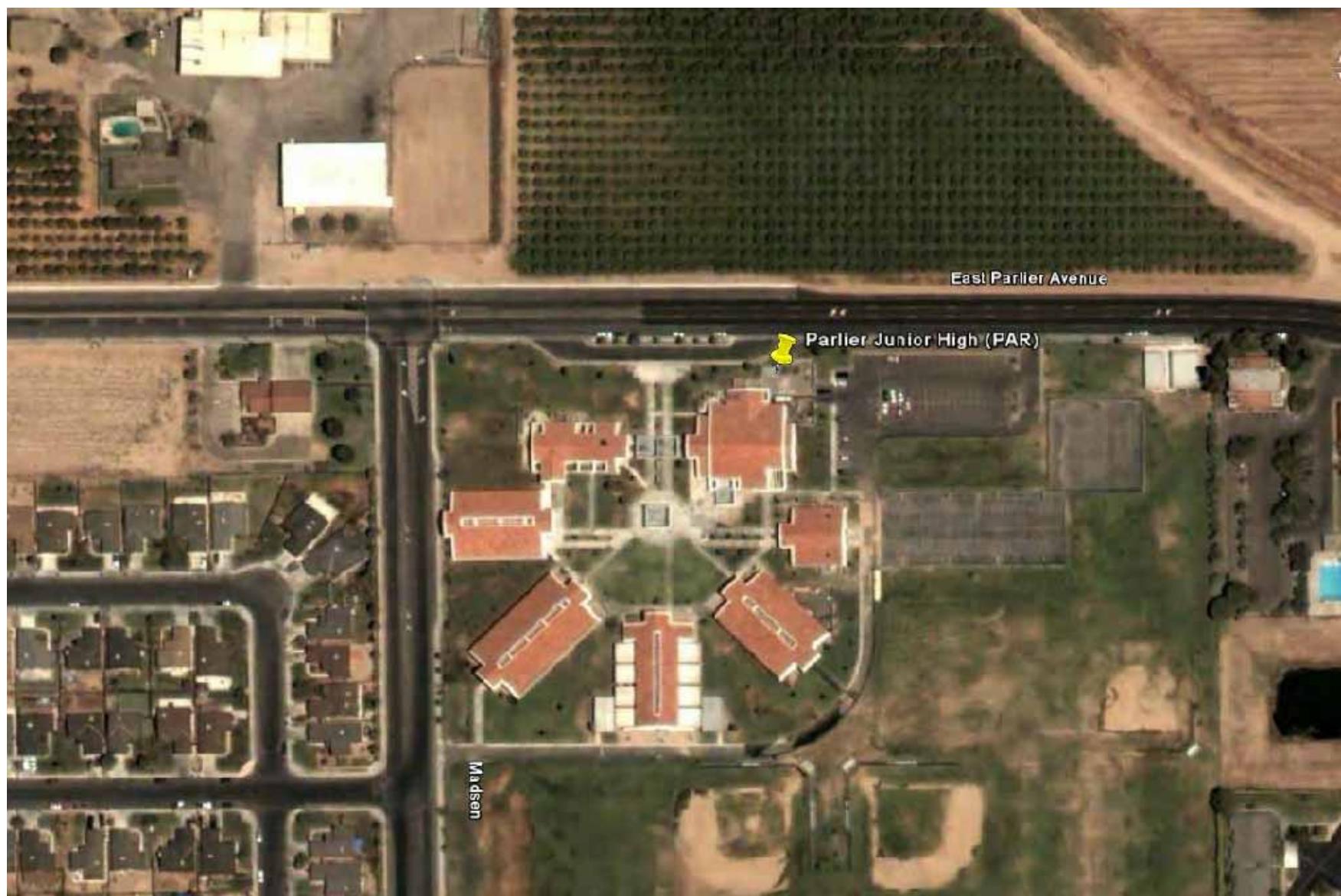


Figure 7a

Richgrove School

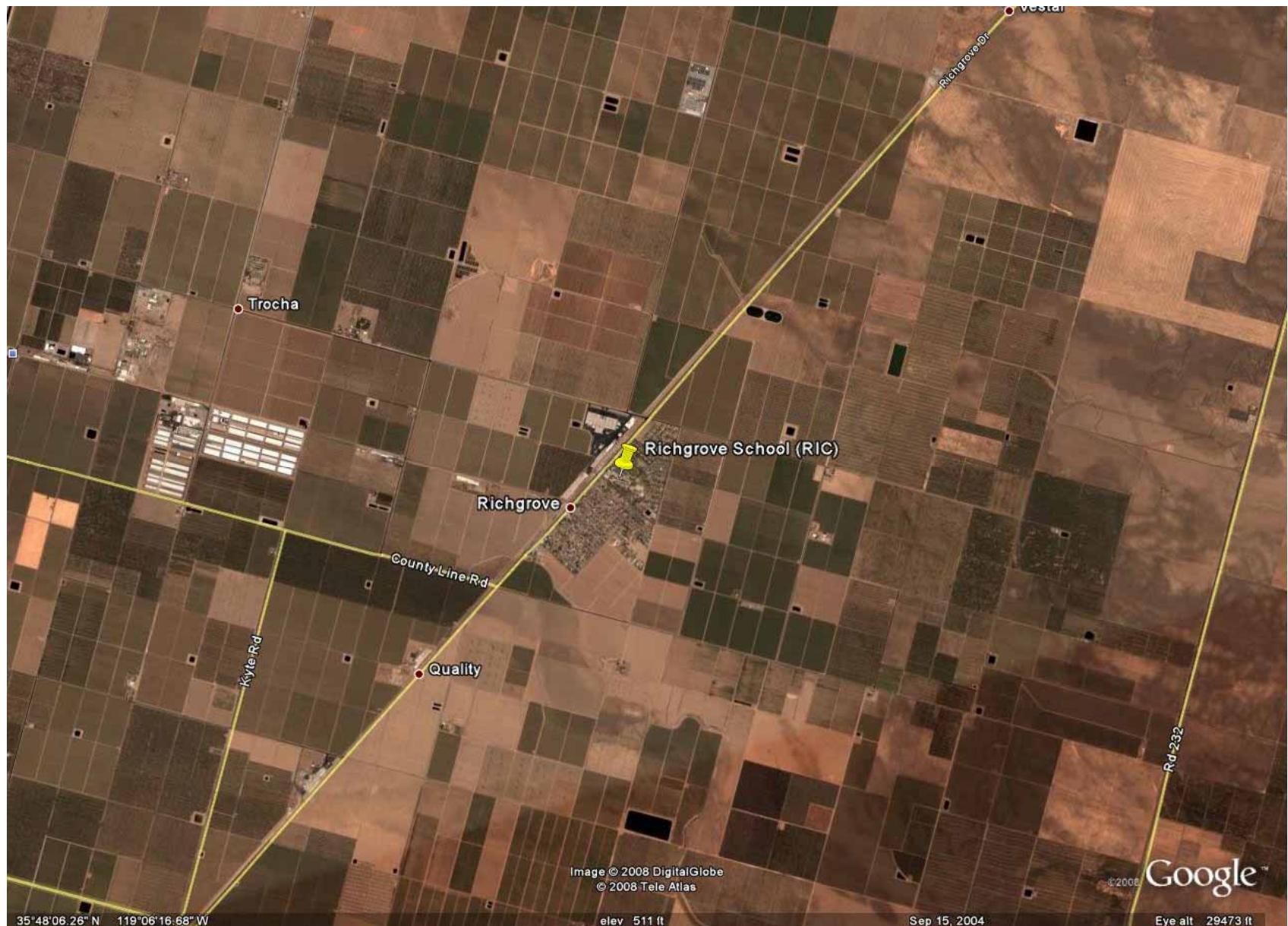


Figure 7b
Closer View of Richgrove School

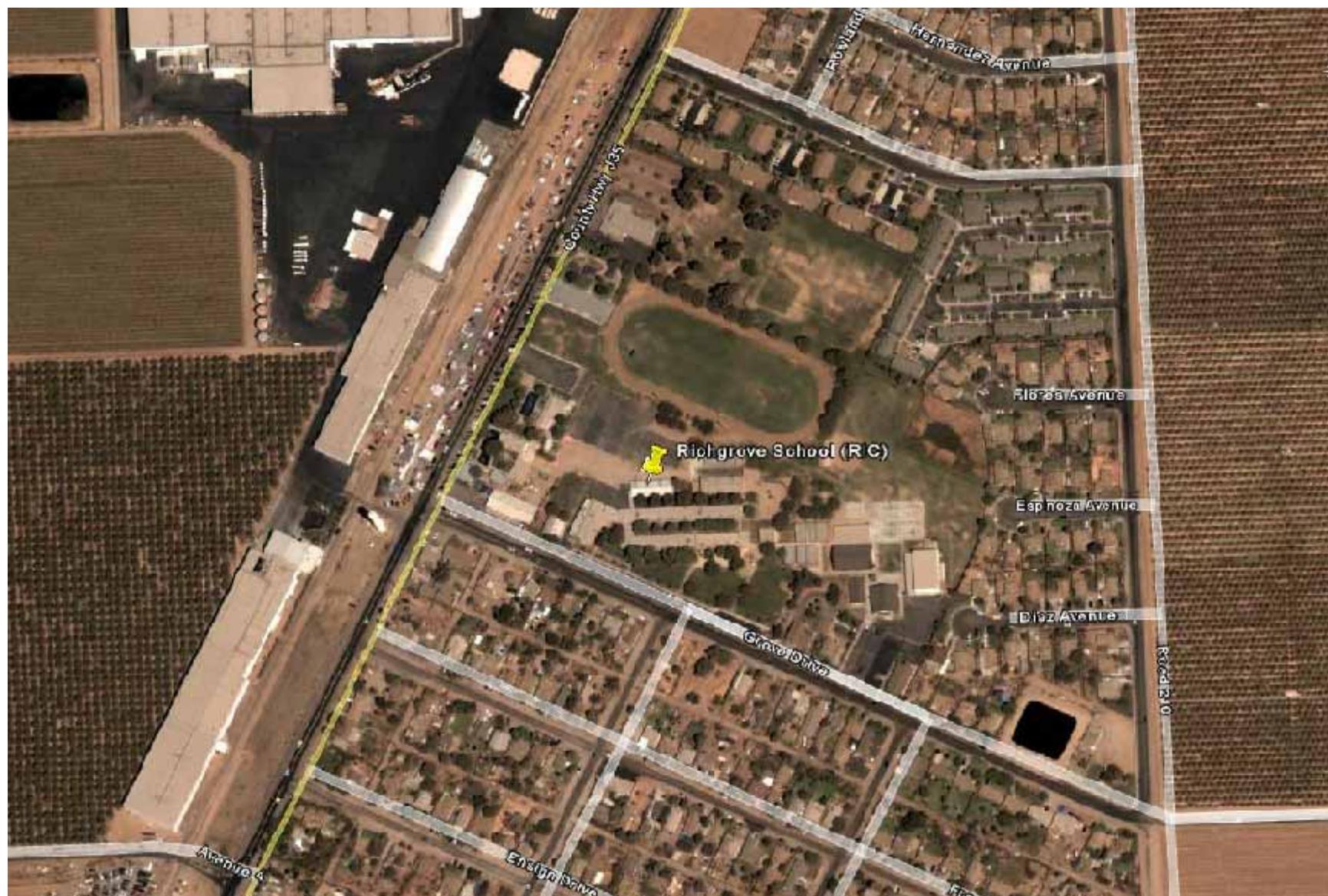


Figure 8b

Kettleman City School



Figure 8b
Closer View of Kettleman City School



Figure 9a

Huron Middle School

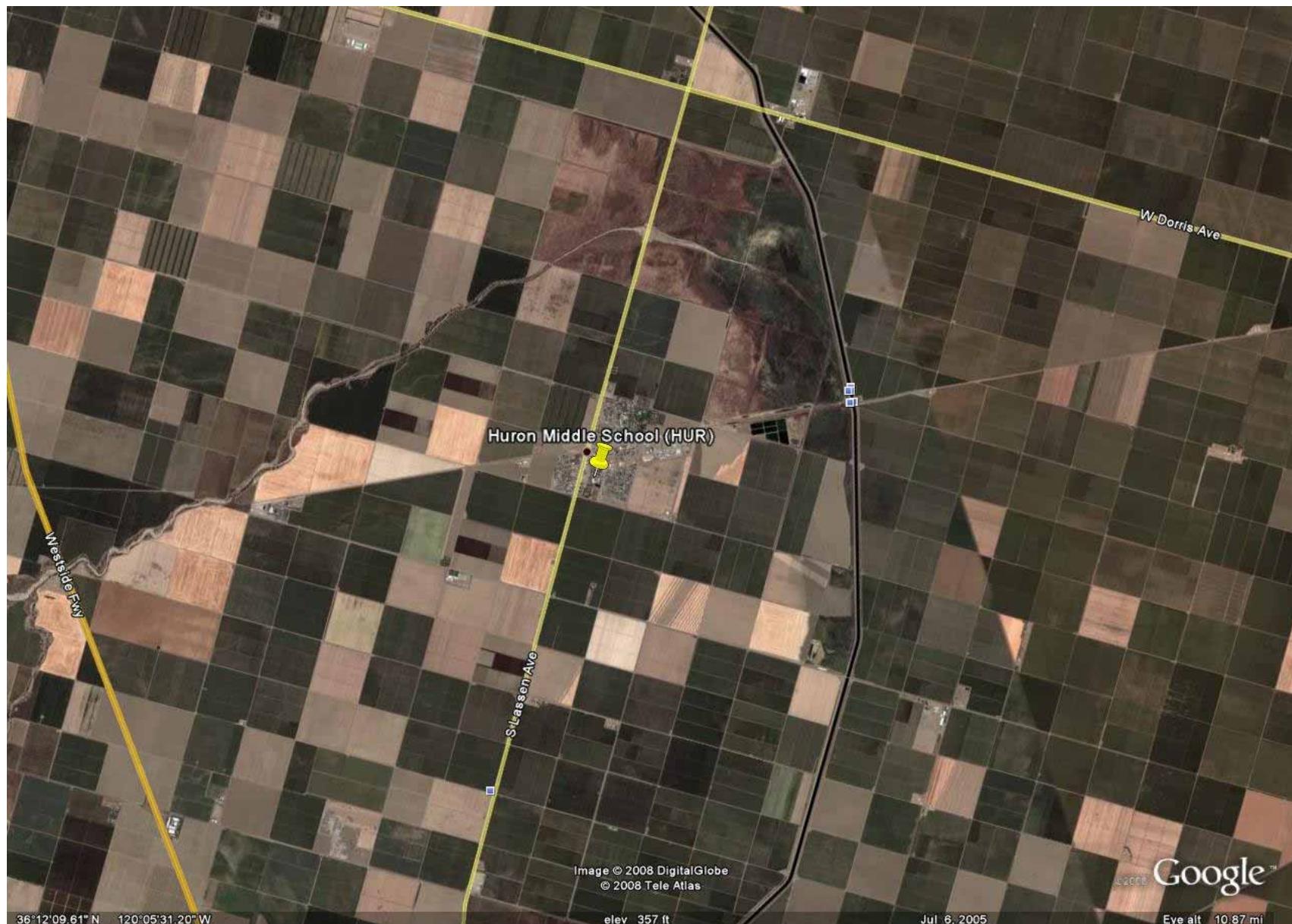
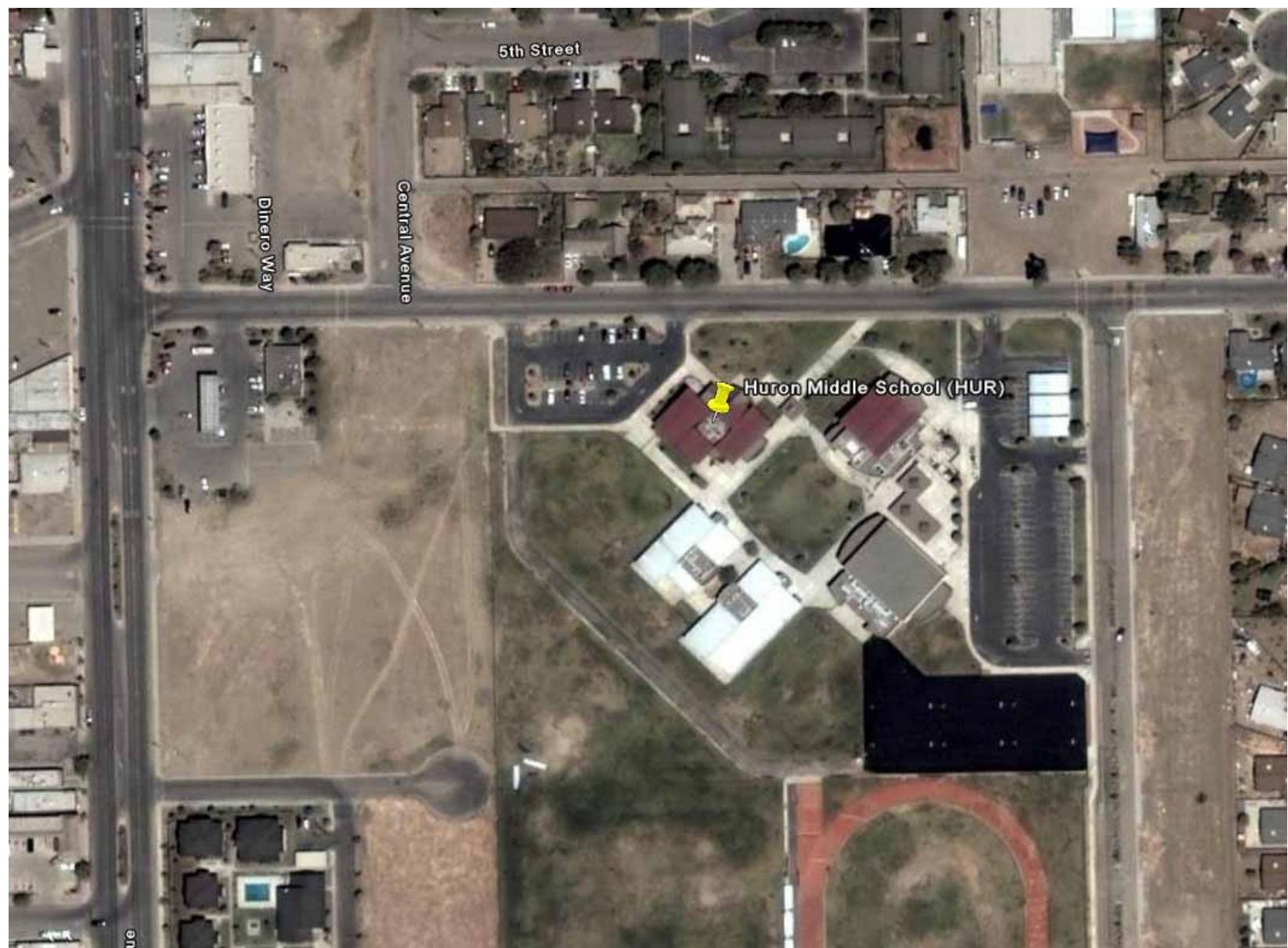


Figure 9b
Closer View of Huron Middle School



3.0 Methods

Samples were collected by passing a measured flow rate of ambient air through XAD-2 resin tubes (SKC #226-30-06) that were mounted on a sampling tree as shown in **Figure 10, Air Sampler Tree with Pump**. The sampling flow rate of 2.0 liters per minute (LPM) was measured using a calibrated mass flow meter (MFM), and the sampling system operated continuously for 24 hours with the exact operating interval recorded on the log sheet.

Depending on the site location, the tubes were protected from direct sunlight and supported about 1.5 meters above roofline or 1.5 meters above the ground in an open secured area.

A 0-5 liter per minute (LPM) rotameter was used to control each sample flow rate. An additional rotameter was used to allow for collocated sampling; the first rotameter to control flow of the primary sample, the second rotameter to control flow of the replicate co-located sample. Co-located sampling occurred once per week at each sampling location.

Each rotameter flow rate was set to 2.0 LPM, as measured using a calibrated digital 0-5 Lpm MFM before the start of each sampling period. The flow rate was also checked, using the MFM, at end of each sampling period. The calibration certificate for the MFM used is in **Appendix E, Calibration/Certification Reports**.

Samplers were leak checked prior to each sampling period with the sampling tubes installed. The leak check was accomplished by placing a cap on the open end of the resin tube and the rotameters flow indication goes to zero. Any change in the flow rates were recorded in the field log sheet. The field log sheet was also used to record start and stop times, start and stop flow rates, start and stop counter readings, sample identifications and any other significant information.

At the end of each sampling period, the resin tubes were capped and placed in culture tubes with an identification label affixed.

Subsequent to sampling, the sample tubes were transported on dry ice to the ARB laboratory in Sacramento for analysis. The samples were stored in the freezer or extracted/analyzed immediately. During this ambient air monitoring project, one tube was used to collect methomyl and carbaryl simultaneously.

In addition to ambient air samples, quality control samples consisting of collocated samples, field spikes, trip spikes, trip blanks and field blanks were also collected.

For details of the monitoring method, please refer to **Appendix B, "Protocol for the Ambient Monitoring for Methomyl and Carbaryl"** (dated July 20, 2007). There were no significant deviations from this protocol regarding monitoring/sampling.

Collected samples were analyzed by the Special Analysis Laboratory Section of MLD's Northern Laboratory Branch. The laboratory performed analysis for methomyl and carbaryl collected on the XAD-2 resin tubes.

Appendix C contains the laboratory results report entitled, "Laboratory Results Report". This report includes the analytical procedure detailed in Appendix A, Standard Operating Procedure Sampling and Analysis of S-methyl-N((methylcarbamoyl)oxy)thioacetimidate (Methomyl) and 1-naphthalenylmethylcarbamate (Carbaryl).

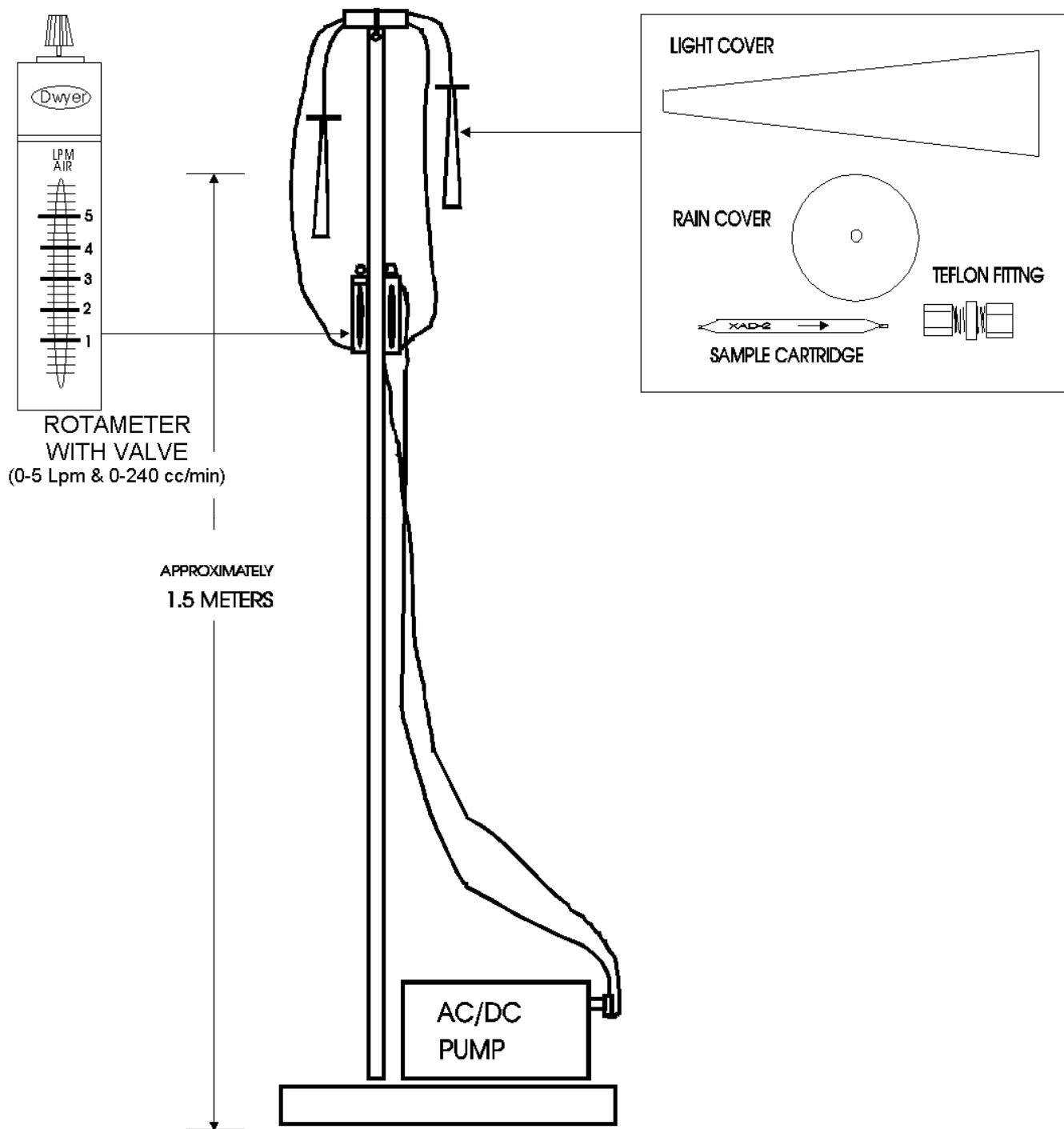


Figure 10
Air Sampler Tree with Pump

4.0 Results

Of the 211 samples collected during this study, methomyl results for five (5) samples are reported above the laboratory level of detection (LOD) of 0.9 ng/sample. The samples are:

Log- # Sample ID Methomyl ng/sample

46	MEN5	11.90
47	MEN5CO	9.87
82	MEN10	27.60
189	MEN21	12.40
190	MEN21CO	11.10

No carbaryl samples are reported above the laboratory LOD of 20.0 ng/sample.

All detailed information is provided in Tables 1 and 2.

The volume of ambient air sampled is shown in **Table 1**, “Monitoring Results” and methomyl and carbaryl concentrations are in **Table 2** “Lab Results”. These analytical results were obtained from **Appendix C**, “Laboratory Results Report”. For additional information on these results, please refer to **Appendix C**.

A sequential Log Number was assigned to each sample by field staff prior to sampling or processing as a quality control sample. At the same time, a unique Sample Identification Name was assigned to each sample.

Each methomyl/carbaryl sample site identification was named according to locations, date and sample type:

Ambient Site Naming (Site Identification and samples 1 through 24):

FRE 1-24	Fresno ARB site
HUR 1-24	Huron site
MEN 1-24	Mendota site
PAR 1-24	Parlier site
RIC 1-24	Richgrove site
KET 1-24	Kettleman City site

Letter Abbreviations as follows:

FS = Field Spike
CO= Co-located
TS = Trip Spike
TB = Trip Blank
FB = Field Blank

In addition, the following abbreviations are also used in this report:

MDL – Method Detection Limit

EQL – Estimated Quantitation Limit

LOD – Level of Detection

Out of a total of 211 collected samples (182 ambient and 29 quality control), 206 samples are considered valid for a data completeness ratio of 97.6%.

Note: Sample number 29 was dropped and broken prior to receipt by the lab. Log numbers 33 through 36 were invalid due to a power outage. Log numbers 69 and 83 were flagged due to a possible misidentification by staff.

Table 1**4.1 Sampling Information**

Log- #	Sample ID	Start Date/Time	End Date/Time	Start Display Flow (LPM)	Corrected Start Flow (LPM)	Stop Display Flow (LPM)	Corrected Stop Flow (LPM)	ETM Start (Hours)	ETM Stop (Hours)	Corrected Total Volume in Cubic Meters (m₃)
1	FRE1	7-23 / 0710	7-24 / 0710	2	2.118	1.99	2.10807	0.6	24.6	3.043
2	FRE1CO	7-23 / 0710	7-24 / 0710	2	2.118	1.96	2.07828	0.6	24.6	3.021
3	PAR1	7-23 / 0805	7-24 / 0805	2	2.118	2	2.118	0.7	24.7	3.05
4	PAR1CO	7-23 / 0805	7-24 / 0805	2	2.118	2.02	2.13786	0.7	24.7	3.064
5	RIC1	7-23 / 0950	7-24 / 0950	2	2.118	2.01	2.12793	3238.4	3262.4	3.057
6	RIC1CO	7-23 / 0950	7-24 / 0950	2	2.118	2.04	2.15772	3238.4	3262.4	3.079
7	KET1	7-23 / 1125	7-24 / 1125	2	2.118	1.98	2.09814	4542	4566	3.036
8	KET1CO	7-23 / 1125	7-24 / 1125	2	2.118	2.02	2.13786	4542	4566	3.064
9	HUR1	7-23 / 1150	7-24 / 1150	2	2.118	1.98	2.09814	3796.7	3820.7	3.036
10	HUR1CO	7-23 / 1150	7-24 / 1150	2	2.118	2	2.118	3796.7	3820.7	3.05
11	MEN1	7-23 / 1310	7-24 / 1310	2	2.118	2	2.118	5217.7	5241.7	3.05
12	MEN1CO	7-23 / 1310	7-24 / 1310	2	2.118	2	2.118	5217.7	5241.7	3.05
13	FRE2	7-24 / 0710	7-25 / 0710	2	2.118	1.96	2.07828	24.6	48.6	3.021
14	PAR2	7-24 / 0805	7-25 / 0805	2	2.118	1.97	2.08821	24.7	48.7	3.028
15	RIC2	7-24 / 0950	7-25 / 0950	2	2.118	2	2.118	3262.4	3286.4	3.05
16	KET2	7-24 / 1125	7-25 / 1125	2	2.118	2	2.118	4566	4590.4	3.101
17	HUR2	7-24 / 1150	7-25 / 1150	2	2.118	2	2.118	3820.7	3844.7	3.05
18	MEN2	7-24 / 1310	7-25 / 1310	2	2.118	1.98	2.09814	5241.7	5265.7	3.036
19	FRE3	7-25 / 0710	7-26 / 0710	2	2.118	1.91	2.02863	48.6	72.6	2.986
20	PAR3	7-25 / 0805	7-26 / 0805	2	2.118	1.98	2.09814	48.7	72.7	3.036
21	RIC3	7-25 / 0950	7-26 / 0950	2	2.118	1.95	2.06835	3286.4	3310.4	3.014
22	KET3	7-25 / 1125	7-26 / 1125	2	2.118	2.03	2.14779	4590.4	4614.4	3.071
23	HUR3	7-25 / 1150	7-26 / 1150	2	2.118	2	2.118	3844.7	3868.7	3.05
24	MEN3	7-25 / 1310	7-26 / 1310	2	2.118	2.1	2.2173	5265.7	5289.7	3.121
25	FRE4	7-26 / 0710	7-27 / 0710	2	2.118	2.01	2.12793	72.6	96.6	3.057

Table 1

4.1 Sampling Information (Continued)

Log- #	Sample ID	Start Date/Time	End Date/Time	Start Display Flow (LPM)	Corrected Start Flow (LPM)	Stop Display Flow (LPM)	Corrected Stop Flow (LPM)	ETM Start (Hours)	ETM Stop (Hours)	Corrected Total volume in cubic meters (m ₃)
26	PAR4	7-26 / 0805	7-27 / 0805	2	2.118	1.99	2.10807	72.7	96.7	3.043
27	RIC4	7-26 / 0950	7-27 / 0950	2	2.118	1.98	2.09814	3310.4	3334.4	3.036
28	KET4	7-26 / 1125	7-27 / 1125	2	2.118	2.01	2.12793	4614	4638	3.057
29	HUR4	7-26 / 1150	7-27 / 1150	2	2.118	2.02	2.13786	3868.7	3892.7	3.064
30	MEN4	7-26 / 1310	7-27 / 1310	2	2.118	2	2.118	5289.7	5313.7	3.05
31	TB-1	N/A	7-27 / 1310	N/A	N/A	N/A	N/A	N/A	N/A	N/A
32	FB-1	N/A	7-27 / 1310	N/A	N/A	N/A	N/A	N/A	N/A	N/A
33	FRE5	7-30 / 0710	7-31 / 0710	2	2.118	1.91	2.02863	96.6	109.3	1.58
34	FRE5CO	7-30 / 0710	7-31 / 0710	2	2.118	1.98	2.09814	96.6	109.3	1.606
35	FS1	7-30 / 0710	7-31 / 0710	2	2.118	2	2.118	96.6	109.3	1.614
36	FS2	7-30 / 0710	7-31 / 0710	2	2.118	2.03	2.14779	96.6	109.3	1.625
37	TS1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
38	PAR5	7-30 / 0805	7-31 / 0805	2	2.118	2.04	2.15772	96.7	120.7	3.079
39	PAR5CO	7-30 / 0805	7-31 / 0805	2	2.118	2.05	2.16765	96.7	120.7	3.086
40	RIC5	7-30 / 0950	7-31 / 0950	2	2.118	2.08	2.19744	3334.4	3358.4	3.107
41	RIC5CO	7-30 / 0950	7-31 / 0950	2	2.118	2.06	2.17758	3334.4	3358.4	3.093
42	KET5	7-30 / 1125	7-31 / 1125	2	2.118	1.97	2.08821	4638	4662	3.028
43	KET5CO	7-30 / 1125	7-31 / 1125	2	2.118	1.96	2.07828	4638	4662	3.021
44	HUR5	7-30 / 1150	7-31 / 1150	2	2.118	2.13	2.24709	3892.7	3916.7	3.143
45	HUR5CO	7-30 / 1150	7-31 / 1150	2	2.118	1.98	2.09814	3892.7	3916.7	3.036
46	MEN5	7-30 / 1310	7-31 / 1310	2	2.118	2.1	2.2173	5313.7	5337.7	3.121
47	MEN5CO	7-30 / 1310	7-31 / 1310	2	2.118	1.98	2.09814	5313.7	5337.7	3.036
48	FRE6	7-31 / 0710	8-1 / 0710	2	2.118	1.94	2.05842	109.3	133.3	3.007
49	FRE6CO	7-31 / 0710	8-1 / 0710	2	2.118	1.9	2.0187	109.3	133.3	2.978
50	PAR6	7-31 / 0805	8-1 / 0805	2	2.118	2	2.118	120.7	144.7	3.05

Log # 29 was invalid due to broken sample. Log #'s 33 through 36 were invalid due to power failure.

Table 1

4.1 Sampling Information (Continued)

Log- #	Sample ID	Start Date/Time	End Date/Time	Start Display Flow (LPM)	Corrected Start Flow (LPM)	Stop Display Flow (LPM)	Corrected Stop Flow (LPM)	ETM Start (Hours)	ETM Stop (Hours)	Corrected Total volume in cubic meters (m ₃)
51	RIC6	7-31 / 0950	8-1 / 0950	2	2.118	2.02	2.13786	3358.4	3382.4	3.064
52	KET6	7-31 / 1125	8-1 / 1125	2	2.118	2	2.118	4662	4686	3.05
53	HUR6	7-31 / 1150	8-1 / 1150	2	2.118	2.02	2.13786	3916.7	3940.7	3.064
54	MEN6	7-31 / 1310	8-1 / 1310	2	2.118	1.98	2.09814	5337.7	5361.7	3.036
55	FRE7	8-1 / 0710	8-2 / 0710	2	2.118	1.91	2.02863	133.3	157.3	2.986
56	PAR7	8-1 / 0805	8-2 / 0805	2	2.118	1.98	2.09814	144.7	168.7	3.036
57	RIC7	8-1 / 0950	8-2 / 0950	2	2.118	1.95	2.06835	3382.4	3406.4	3.014
58	KET7	8-1 / 1125	8-2 / 1125	2	2.118	2.03	2.14779	4686.4	4710	3.02
59	HUR7	8-1 / 1150	8-2 / 1150	2	2.118	2	2.118	3940.7	3964.7	3.05
60	MEN7	8-1 / 1310	8-2 / 1310	2	2.118	2.1	2.2173	5361.7	5385.7	3.121
61	FRE8	8-2 / 0710	8-3 / 0710	2	2.118	2.01	2.12793	157.3	181.3	3.057
62	PAR8	8-2 / 0805	8-3 / 0805	2	2.118	1.99	2.10807	168.7	192.7	3.043
63	RIC8	8-2 / 0950	8-3 / 0950	2	2.118	1.98	2.09814	3406.4	3430.4	3.036
64	KET8	8-2 / 1125	8-3 / 1125	2	2.118	2.01	2.12793	4710	4734	3.057
65	HUR8	8-2 / 1150	8-3 / 1150	2	2.118	2.02	2.13786	3964.7	3988.7	3.064
66	MEN8	8-2 / 1310	8-3 / 1310	2	2.118	2	2.118	5385.7	5409.7	3.05
67	FB-2	N/A	8-3 / 1310	N/A	N/A	N/A	N/A	N/A	N/A	N/A
68	TB-2	N/A	8-3 / 1310	N/A	N/A	N/A	N/A	N/A	N/A	N/A
69	FRE9	8-06 / 0724	8-07 / 0724	2	2.118	2.13	2.24709	181.4	205.4	3.148
70	FS3A	8-06 / 0724	8-07 / 0724	2	2.118	1.87	1.98891	181.4	205.4	2.957
71	FS3B	8-06 / 0724	8-07 / 0724	2	2.118	1.92	2.03856	181.4	205.4	2.993
72	PAR9	8-06 / 0807	8-07 / 0807	2	2.118	2	2.118	192.7	216.7	3.045
73	RIC9	8-06 / 0943	8-07 / 0943	2	2.118	1.99	2.10807	3430.4	3454.4	3.043
74	KET9	8/06 / 1134	8/07 / 1134	2	2.118	2	2.118	4734.2	4758.2	3.05
75	HUR9	8/06 / 1206	8/07 / 1206	2	2.118	2.26	2.37618	3988.7	4012.7	3.236

Log # 69 was flagged due to possible misidentification with Log # 83.

Table 1

4.1 Sampling Information (Continued)

Log- #	Sample ID	Start Date/Time	End Date/Time	Start Display Flow (LPM)	Corrected Start Flow (LPM)	Stop Display Flow (LPM)	Corrected Stop Flow (LPM)	ETM Start (Hours)	ETM Stop (Hours)	Corrected Total volume in cubic meters (m ₃)
76	MEN9	8/06 / 1308	8/07 / 1308	2	2.118	2.03	2.14779	5409.7	5433.7	3.071
77	FRE10	8-07 / 0724	8-08 / 0724	2	2.118	2.06	2.17758	205.4	229.4	3.093
78	PAR10	8-07 / 0807	8-08 / 0807	2	2.118	1.99	2.10807	216.7	240.7	3.043
79	RIC10	8-07 / 0943	8-08 / 0943	2	2.118	1.99	2.10807	3454.4	3478.4	3.043
80	KET10	8/07 / 1134	8/08 / 1134	2	2.118	1.96	2.07828	4758.2	4782.2	3.021
81	HUR10	8/07 / 1206	8/08 / 1206	2	2.118	2.43	2.54499	4012.7	4036.7	3.357
82	MEN10	8/07 / 1308	8/08 / 1308	2	2.118	2.14	2.25702	5433.7	5457.7	3.15
83	FRE10CO	8-07 / 0724	8-08 / 0724	2	2.118	1.93	2.04849	205.4	229.4	3
84	FRE11	8-08 / 0724	8-09 / 0724	2	2.118	2.07	2.18751	229.4	253.4	3.1
85	FRE11CO	8-08 / 0724	8-09 / 0724	2	2.118	2	2.118	229.4	253.4	3.05
86	PAR11	8-08 / 0807	8-09 / 0807	2	2.118	1.95	2.06835	240.7	264.7	3.014
87	PAR11CO	8-08 / 0807	8-09 / 0807	2	2.118	1.88	1.99884	240.7	264.7	2.964
88	RIC11	8-08 / 0943	8-09 / 0943	2	2.118	2.09	2.20737	3478.4	3502.4	3.114
89	RIC11CO	8-08 / 0943	8-09 / 0943	2	2.118	1.98	2.09814	3478.4	3502.4	3.036
90	KET11	8/08 / 1134	8/09 / 1134	2	2.118	1.97	2.08821	4782.2	4806.2	3.035
91	KET11CO	8/08 / 1134	8/09 / 1134	2	2.118	1.92	2.03856	4782.5	4806.2	2.955
92	HUR11	8/08 / 1206	8/09 / 1206	2	2.118	2.07	2.18751	4036.7	4060.7	3.1
93	HUR11CO	8/08 / 1206	8/09 / 1206	2	2.118	1.88	1.99884	4036.7	4060.7	2.964
94	MEN11	8/08 / 1308	8/09 / 1308	2	2.118	2.11	2.22723	5457.7	5481.7	3.129
95	MEN11CO	8/08 / 1308	8/09 / 1308	2	2.118	1.93	2.04849	5457.7	5481.7	3
96	FRE12	8-09 / 0724	8-10 / 0724	2	2.118	2.04	2.15772	253.4	277.4	3.079
97	FS3ab	8-09 / 0724	8-10 / 0724	2	2.118	1.87	1.98891	253.4	277.4	2.957
98	FS3bb	8-09 / 0724	8-10 / 0724	2	2.118	2	2.118	253.4	277.4	3.05
99	PAR12	8-09 / 0807	8-10 / 0807	2	2.118	1.98	2.09814	264.7	288.7	3.036
100	RIC12	8-09 / 0943	8-10 / 0943	2	2.118	2.03	2.14779	3502.4	3526.4	3.071

Log # 83 was flagged due to possible misidentification with Log # 69.

Table 1**4.1 Sampling Information (Continued)**

Log- #	Sample ID	Start Date/Time	End Date/Time	Start Display Flow (LPM)	Corrected Start Flow (LPM)	Stop Display Flow (LPM)	Corrected Stop Flow (LPM)	ETM Start (Hours)	ETM Stop (Hours)	Corrected Total volume in cubic meters (m₃)
101	KET12	8/09 / 1134	8/10 / 1134	2	2.118	1.97	2.08821	4806.2	4830.2	3.035
102	HUR12	8/09 / 1206	8/10 / 1206	2	2.118	2	2.118	4060.7	4084.7	3.05
103	MEN12	8/09 / 1308	8/10 / 1308	2	2.118	2.16	2.27688	5481.7	5505.7	3.164
104	TRIP 3	N/A	8-10 / 1410	N/A	N/A	N/A	N/A	N/A	N/A	N/A
105	FIELD 3	N/A	8-10 / 1410	N/A	N/A	N/A	N/A	N/A	N/A	N/A
106	TS-1	N/A	8-10 / 1410	N/A	N/A	N/A	N/A	N/A	N/A	N/A
107	FRE13	8-13 / 0700	8-14 / 0700	2	2.118	2.09	2.20737	277.4	301.4	3.114
108	FRE13CO	8-13 / 0700	8-14 / 0700	2	2.118	1.96	2.07828	277.4	301.4	3.021
109	PAR13	8-13 / 0726	8-14 / 0738	2	2.118	2	2.118	288.8	312.8	3.051
110	PAR13CO	8-13 / 0726	8-14 / 0738	2	2.118	1.97	2.08821	288.8	312.8	3.03
111	RIC13	8/13 / 0905	8-14 / 0905	2	2.118	2.01	2.12793	3526.4	3550.4	3.052
112	RIC13CO	8/13 / 0905	8-14 / 0905	2	2.118	1.94	2.05842	3526.4	3550.4	3.002
113	KET13	8/13 / 1103	8/14 / 1103	2	2.118	1.89	2.00877	4830.2	4854.2	2.971
114	KET13CO	8/13 / 1103	8/14 / 1103	2	2.118	2	2.118	4830.2	4854.2	3.05
115	HUR13	8-13 / 1138	8-14 / 1138	2	2.118	2.24	2.35632	4084.7	4108.7	3.222
116	HUR13CO	8-13 / 1138	8-14 / 1138	2	2.118	2.11	2.22723	4084.7	4108.7	3.129
117	MEN13	8-13 / 1239	8-14 / 1239	2	2.118	1.98	2.09814	5505.7	5529.7	3.036
118	MEN13CO	8-13 / 1239	8-14 / 1239	2	2.118	1.99	2.10807	5505.7	5529.7	3.043
119	FLD4	8-13 / 1248	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
120	TS2	8-13 / 1253	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
121	FRE14	8-14 / 0700	8-15 / 0700	2	2.118	2.04	2.15772	301.4	325.4	3.079
122	SPIKE4A	8-14 / 0700	8-15 / 0700	2	2.118	1.83	1.94919	301.4	325.4	2.928
123	SPIKE4B	8-14 / 0700	8-15 / 0700	2	2.118	1.99	2.10807	301.4	325.4	3.043
124	PAR14	8-14 / 0738	8-15 / 0738	2	2.118	2	2.118	312.8	336.8	3.05
125	RIC14	8-14 / 0905	8/15 / 0905	2	2.118	2	2.118	3550.4	3574.4	3.05

Table 1**4.1 Sampling Information (Continued)**

Log- #	Sample ID	Start Date/Time	End Date/Time	Start Display Flow (LPM)	Corrected Start Flow (LPM)	Stop Display Flow (LPM)	Corrected Stop Flow (LPM)	ETM Start (Hours)	ETM Stop (Hours)	Corrected Total volume in cubic meters (m₃)
126	KET14	8/14 / 1103	8/15 / 1103	2	2.118	1.96	2.07828	4854.2	4878.2	3.021
127	HUR14	8-14 / 1138	8/15 / 1138	2	2.118	2.31	2.42583	4108.7	4132.7	3.272
128	MEN14	8-14 / 1239	8-15 / 1239	2	2.118	1.99	2.10807	5529.7	5553.7	3.043
129	FRE15	8/15 / 0700	8-16 / 0700	2	2.118	2.16	2.27688	325.4	349.4	3.164
130	PAR15	8-15 / 0738	8-15 / 0738	2	2.118	2	2.118	336.8	360.8	3.05
131	RIC15	8/15 / 0905	8-15 / 0905	2	2.118	2.05	2.16765	3574.4	3598.4	3.086
132	KET15	8/15 / 1103	8-15 / 1103	2	2.118	2.1	2.2173	4878.2	4902.2	3.121
133	HUR15	8/15 / 1138	8/15 / 1138	2	2.118	2.36	2.47548	4132.7	4156.7	3.307
134	MEN15	8-15 / 1239	8/15 / 1239	2	2.118	2.07	2.18751	5553.7	5577.7	3.1
135	FRE16	8-16 / 0700	8-10 / 0724	2	2.118	2.14	2.25702	349.4	373.4	3.15
136	PAR16	8-15 / 0738	8-10 / 0724	2	2.118	1.99	2.10807	360.8	384.8	3.043
137	RIC16	8-15 / 0905	8-10 / 0807	2	2.118	1.99	2.10807	3598.4	3622.4	3.043
138	KET16	8-15 / 1103	8-10 / 0943	2	2.118	1.96	2.07828	4902.2	4926.2	3.021
139	HUR16	8/15 / 1138	8/10 / 1134	2	2.118	2.05	2.16765	4156.7	4180.7	3.086
140	MEM16	8/15 / 1239	8/10 / 1206	2	2.118	2	2.118	5577.7	5601.7	3.05
141	TB-4	8/17 / 0700	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
142	FRE17	8-20 / 0715	8-21 / 0715	2	2.118	1.92	2.03856	373.4	397.4	2.993
143	FRE17CO	8-20 / 0715	8-21 / 0715	2	2.118	1.94	2.05842	373.4	397.4	3.007
144	Spike 5A	8-20 / 0715	8-21 / 0715	2	2.118	2.04	2.15772	373.4	397.4	3.079
145	Spike 5B	8-20 / 0715	8-21 / 0715	2	2.118	1.98	2.09814	373.4	397.4	3.036
146	PAR17	8/20 / 0755	8-21 / 0755	2	2.118	2	2.118	384.8	408.8	3.05
147	PAR17CO	8/20 / 0755	8-21 / 0755	2	2.118	1.98	2.09814	384.8	408.8	3.036
148	RIC17	8/20 / 0925	8/21 / 0925	2	2.118	1.97	2.08821	3622.4	3646.4	3.028
149	RIC17CO	8/20 / 0925	8/21 / 0925	2	2.118	1.93	2.04849	3622.4	3646.4	3
150	KET17	8-20 / 1050	8-21 / 1050	2	2.118	1.92	2.03856	4926.1	4950.1	2.993

Table 1

4.1 Sampling Information (Continued)

Log- #	Sample ID	Start Date/Time	End Date/Time	Start Display Flow (LPM)	Corrected Start Flow (LPM)	Stop Display Flow (LPM)	Corrected Stop Flow (LPM)	ETM Start (Hours)	ETM Stop (Hours)	Corrected Total volume in cubic meters (m ₃)
151	KET17CO	8-20 / 1050	8-21 / 1050	2	2.118	1.98	2.09814	4926.1	4950.1	3.036
152	HUR17	8-20 / 1125	8-21 / 1125	2	2.118	1.94	2.05842	4180.7	4204.7	3.007
153	HUR17CO	8-20 / 1125	8-21 / 1125	2	2.118	1.93	2.04849	4180.7	4204.7	3
154	MEN17	8-20/11230	8-21 / 1230	2	2.118	1.97	2.08821	5601.7	5625.7	3.028
155	MEN17CO	8-20/11230	8-21 / 1230	2	2.118	2.09	2.20737	5601.7	5625.7	3.114
156	Trip 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
157	FRE18	8-21 / 0715	8-22 / 0715	2	2.118	1.93	2.04849	397.4	421.4	3
158	PAR18	8-21 / 0755	8-22 / 0755	2	2.118	1.99	2.10807	408.8	432.8	3.043
159	RIC18	8-21 / 0925	8-22 / 0925	2	2.118	2	2.118	3646.4	3670.4	3.05
160	KET18	8-21 / 1050	8-22 / 1050	2	2.118	1.95	2.06835	4950.1	4974.4	3.052
161	HUR18	8/21 / 1125	8/22 / 1125	2	2.118	1.96	2.07828	4204.7	4228.7	3.021
162	MEN18	8-21 / 1230	8-22 / 1230	2	2.118	2	2.118	5625.7	5649.7	3.05
163	FRE19	8-22 / 0715	8-23 / 0715	2	2.118	1.96	2.07828	421.4	445.4	3.021
164	PAR19	8-22 / 0755	8-23 / 0755	2	2.118	2	2.118	432.8	456.8	3.05
165	RIC19	8-22 / 0925	8-23 / 0925	2	2.118	1.97	2.08821	3670.4	3694.4	3.028
166	KET19	8-22 / 1050	8-23 / 1050	2	2.118	2	2.118	4974.1	4998.1	3.05
167	HUR19	8/22 / 1125	8/23 / 1125	2	2.118	2	2.118	4228.7	4252.7	3.05
168	MEN19	8-22 / 1230	8-23 / 1230	2	2.118	2.02	2.13786	5649.7	5673.7	3.064
169	FRE20	8-23 / 0715	8-24 / 0715	2	2.118	2.03	2.14779	445.4	469.4	3.071
170	PAR20	8-23 / 0755	8-24 / 0755	2	2.118	2.06	2.17758	456.8	480.8	3.093
171	RIC20	8-23 / 0925	8-24 / 0925	2	2.118	2.04	2.15772	4694.4	4718.4	3.079
172	KET20	8-23 / 1050	8-24 / 1050	2	2.118	2.03	2.14779	4998.1	5022.1	3.071
173	HUR20	8/23 / 1125	8/24 / 1125	2	2.118	2	2.118	4252.7	4276.7	3.05
174	MEN20	8-23 / 1230	8-24 / 1230	2	2.118	1.99	2.10807	5673.7	5697.7	3.043
175	FB-5	N/A	8-24 / 1230	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 1**4.2 Sampling Information (Continued)**

Log- #	Sample ID	Start Date/Time	End Date/Time	Start Display Flow (LPM)	Corrected Start Flow (LPM)	Stop Display Flow (LPM)	Corrected Stop Flow (LPM)	ETM Start (Hours)	ETM Stop (Hours)	Corrected Total volume in cubic meters (m₃)
176	TB-5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
177	FRE21	8-27 / 0715	8-28 / 0715	2	2.118	2.01	2.12793	469.4	493.4	3.062
178	FRE21CO	8-27 / 0715	8-28 / 0715	2	2.118	1.95	2.06835	469.4	493.4	3.019
179	Spike 6A	8-27 / 0715	8-28 / 0715	2	2.118	1.95	2.06835	469.4	493.4	3.019
180	Spike 6B	8-27 / 0715	8-28 / 0715	2	2.118	1.96	2.07828	469.4	493.4	3.026
181	PAR21	8/27 / 0755	8-28 / 0755	2	2.118	1.97	2.08821	480.8	504.8	3.028
182	PAR21CO	8/27 / 0755	8-28 / 0755	2	2.118	1.97	2.08821	480.8	504.8	3.028
183	RIC21	8/27 / 0925	8/28 / 0925	2	2.118	2.03	2.14779	4718.4	4742.4	3.071
184	RIC21CO	8/27 / 0925	8/28 / 0925	2	2.118	2	2.118	4718.4	4742.4	3.05
185	KET21	8-27 / 1050	8-28 / 1050	2	2.118	1.95	2.06835	5022.1	5046.1	3.014
186	KET21CO	8-27 / 1050	8-28 / 1050	2	2.118	2	2.118	5022.1	5046.1	3.05
187	HUR21	8-27 / 1125	8-28 / 1125	2	2.118	1.96	2.07828	4276.7	4300.7	3.021
188	HUR21CO	8-27 / 1125	8-28 / 1125	2	2.118	1.98	2.09814	4276.7	4300.7	3.036
189	MEN21	8-27 / 1230	8-28 / 1230	2	2.118	2	2.118	5697.7	5721.7	3.05
190	MEN21CO	8-27 / 1230	8-28 / 1230	2	2.118	2	2.118	5697.7	5721.7	3.05
191	Trip 6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
192	FRE22	8-28 / 0715	8-29 / 0715	2	2.118	2	2.118	493.4	517.4	3.045
193	PAR22	8-28 / 0755	8-29 / 0755	2	2.118	2	2.118	504.8	528.8	3.05
194	RIC22	8-28 / 0925	8-29 / 0925	2	2.118	2	2.118	4742.4	4766.4	3.05
195	KET22	8-28 / 1050	8-29 / 1050	2	2.118	1.97	2.08821	5046.1	5070.1	3.028
196	HUR22	8/28 / 1125	8/29 / 1125	2	2.118	2.04	2.15772	4300.8	4324.8	3.079
197	MEN22	8-28 / 1230	8-29 / 1230	2	2.118	1.97	2.08821	5721.7	5745.7	3.028
198	FRE23	8-29 / 0715	8-30 / 0715	2	2.118	2	2.118	517.4	541.4	3.05
199	PAR23	8-29 / 0755	8-30 / 0755	2	2.118	1.98	2.09814	528.8	552.8	3.036
200	RIC23	8-29 / 0925	8-30 / 0925	2	2.118	1.99	2.10807	4766.4	4790.4	3.043

Table 1

4.3 Sampling Information (Continued)

Log- #	Sample ID	Start Date/Time	End Date/Time	Start Display Flow (LPM)	Corrected Start Flow (LPM)	Stop Display Flow (LPM)	Corrected Stop Flow (LPM)	ETM Start (Hours)	ETM Stop (Hours)	Corrected Total volume in cubic meters (m₃)
201	KET23	8-29 / 1050	8-30 / 1050	2	2.118	2	2.118	5070.1	5094.1	3.05
202	HUR23	8/29 / 1125	8/30 / 1125	2	2.118	2	2.118	4324.8	4348.8	3.05
203	MEN23	8-29 / 1230	8-30 / 1230	2	2.118	2.04	2.15772	5745.7	5769.7	3.079
204	FRE24	8-30 / 0715	8-31 / 0715	2	2.118	1.94	2.05842	541.4	565.4	3.007
205	PAR24	8-30 / 0755	8-31 / 0755	2	2.118	1.97	2.08821	552.8	576.8	3.028
206	RIC24	8-30 / 0925	8-31 / 0925	2	2.118	2	2.118	4790.4	4814.4	3.05
207	KET24	8-30 / 1050	8-31 / 1050	2	2.118	1.94	2.05842	5094.1	5118.1	3.007
208	HUR24	8/30 / 1125	8/31 / 1125	2	2.118	2.01	2.12793	4348.8	4372.8	3.057
209	MEN24	8-30 / 1230	8-31 / 1230	2	2.118	1.98	2.09814	5769.7	5793.7	3.036
210	FB-6	N/A	8-31 / 1230	N/A	N/A	N/A	N/A	N/A	N/A	N/A
211	TB-6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

The formula below refers to Table 1, Monitoring Results:

Total in cubic meters (m₃) of ambient air =

((((Sample Flow Start + Sample Flow Stop)/2)*Slope of 0.993) + Offset of 0.132)*((ETM Stop - ETM Start)*60 minutes)= Liters of ambient air / 1000 = **Total in cubic meters (m₃)**

or

Corrected Total Volume (m₃) = [(Start Flow + Stop Flow) (m)] + b *[(ETM Stop Hours- ETM Start Hours)*60 minutes]*1000

(2)

Table 2**4.2 Calculated Results**

Log- #	Sample ID	Total Volume m ³	Methomyl ng/sample	Methomyl ng/m ³	Reported Carbaryl ng/sample	Calculated Carbaryl ng/m ³
1	FRE1	3.043	<9E-01	<0.3	<2E+01	<0.66
2	FRE1CO	3.021	<9E-01	<0.3	<2E+01	<0.66
3	PAR1	3.05	<9E-01	<0.3	<2E+01	<0.66
4	PAR1CO	3.064	<9E-01	<0.29	<2E+01	<0.65
5	RIC1	3.057	<9E-01	<0.29	<2E+01	<0.65
6	RIC1CO	3.079	<9E-01	<0.29	<2E+01	<0.65
7	KET1	3.036	<9E-01	<0.3	<2E+01	<0.66
8	KET1CO	3.064	<9E-01	<0.29	<2E+01	<0.66
9	HUR1	3.036	<9E-01	<0.3	<2E+01	<0.66
10	HUR1CO	3.05	<9E-01	<0.3	<2E+01	<0.66
11	MEN1	3.05	<9E-01	<0.3	<2E+01	<0.66
12	MEN1CO	3.05	<9E-01	<0.3	<2E+01	<0.66
13	FRE2	3.021	<9E-01	<0.3	<2E+01	<0.66
14	PAR2	3.028	<9E-01	<0.3	<2E+01	<0.66
15	RIC2	3.05	<9E-01	<0.3	<2E+01	<0.66
16	KET2	3.101	<9E-01	<0.29	<2E+01	<0.66
17	HUR2	3.05	<9E-01	<0.3	<2E+01	<0.66
18	MEN2	3.036	<9E-01	<0.3	<2E+01	<0.66
19	FRE3	2.986	<9E-01	<0.3	<2E+01	<0.67
20	PAR3	3.036	<9E-01	<0.3	<2E+01	<0.66
21	RIC3	3.014	<9E-01	<0.3	<2E+01	<0.66
22	KET3	3.071	<9E-01	<0.29	<2E+01	<0.65
23	HUR3	3.05	<9E-01	<0.3	<2E+01	<0.66
24	MEN3	3.121	<9E-01	<0.29	<2E+01	<0.64
25	FRE4	3.057	<9E-01	<0.29	<2E+01	<0.654
26	PAR4	3.043	<9E-01	<0.3	<2E+01	<0.66
27	RIC4	3.036	<9E-01	<0.3	<2E+01	<0.66
28	KET4	3.057	<9E-01	<0.29	<2E+01	<0.65
29	HUR4	3.064	<9E-01	<0.29	<2E+01	<0.65
30	MEN4	3.05	<9E-01	<0.3	<2E+01	<0.66
31	TB-1	N/A	<9E-01	N/A	<2E+01	N/A
32	FB-1	N/A	<9E-01	N/A	<2E+01	N/A
33	FRE5	1.58	<9E-01	<0.57	<2E+01	<1.27
34	FRE5CO	1.606	<9E-01	<0.56	<2E+01	<1.25

Log # 29 was invalid due to broken sample; Log #'s 33 and 34 were invalid due to power failure.

Table 2

4.2 Calculated Results (continued)

Log- #	Sample ID	Total Volume m ³	Methomyl ng/sample	Methomyl ng/m ³	Reported Carbaryl ng/sample	Calculated Carbaryl ng/m ³
35	FS1	1.614	32.46	20.112	878.49	544.294
36	FS2	1.625	32.97	20.228	791.94	487.348
37	TS1	N/A	56.04	N/A	785.04	N/A
38	PAR5	3.079	<9E-01	<0.29	<2E+01	<0.65
39	PAR5CO	3.086	<9E-01	<0.29	<2E+01	<0.65
40	RIC5	3.107	<9E-01	<0.29	<2E+01	<0.64
41	RIC5CO	3.093	<9E-01	<0.29	<2E+01	<0.65
42	KET5	3.028	<9E-01	<0.3	<2E+01	<0.66
43	KET5CO	3.021	<9E-01	<0.3	<2E+01	<0.66
44	HUR5	3.143	<9E-01	<0.29	<2E+01	<0.64
45	HUR5CO	3.036	<9E-01	<0.3	<2E+01	<0.66
46	MEN5	3.121	1.19E+01	3.81	<2E+01	<0.64
47	MEN5CO	3.036	9.87E+00	3.25	<2E+01	<0.66
48	FRE6	3.007	<9E-01	<0.3	<2E+01	<0.66
49	FRE6CO	2.978	<9E-01	<0.3	<2E+01	<0.67
50	PAR6	3.05	<9E-01	<0.3	<2E+01	<0.66
51	RIC6	3.064	<9E-01	<0.29	<2E+01	<0.65
52	KET6	3.05	<9E-01	<0.3	<2E+01	<0.66
53	HUR6	3.064	<9E-01	<0.29	<2E+01	<0.65
54	MEN6	3.036	<9E-01	<0.3	<2E+01	<0.66
55	FRE7	2.986	<9E-01	<0.3	<2E+01	<0.67
56	PAR7	3.036	<9E-01	<0.3	<2E+01	<0.66
57	RIC7	3.014	<9E-01	<0.3	<2E+01	<0.66
58	KET7	3.02	<9E-01	<0.3	<2E+01	<0.66
59	HUR7	3.05	<9E-01	<0.3	<2E+01	<0.66
60	MEN7	3.121	<9E-01	<0.29	<2E+01	<0.64
61	FRE8	3.057	<9E-01	<0.29	<2E+01	<0.654
62	PAR8	3.043	<9E-01	<0.3	<2E+01	<0.657
63	RIC8	3.036	<9E-01	<0.3	<2E+01	<0.659
64	KET8	3.057	<9E-01	<0.29	<2E+01	<0.654
65	HUR8	3.064	<9E-01	<0.29	<2E+01	<0.65
66	MEN8	3.05	<9E-01	<0.3	<2E+01	<0.66
67	FB-2	N/A	<9E-01	N/A	<18.67	N/A
68	TB-2	N/A	<9E-01	N/A	<18.67	N/A

Log #'s 35 and 36 were invalid due to power failure

Table 2

4.2 Calculated Results (continued)

Log- #	Sample ID	Total Volume m ³	Methomyl ng/sample	Methomyl ng/m ³	Reported Carbaryl ng/sample	Calculated Carbaryl ng/m ³
69	FRE9	3.15	<9E-01	10.937	<2E+01	300.960
70	FS3A	2.96	32.34	11.267	889.93	297.883
71	FS3B	2.99	33.72	<0.3	891.48	<0.67
72	PAR9	3.04	<9E-01	<0.3	<2E+01	<0.66
73	RIC9	3.04	<9E-01	<0.3	<2E+01	<0.66
74	KET9	3.05	<9E-01	<0.3	<2E+01	<0.66
75	HUR9	3.24	<9E-01	<0.28	<2E+01	<0.62
76	MEN9	3.07	<9E-01	<0.29	<2E+01	<0.65
77	FRE10	3.09	<9E-01	<0.29	<2E+01	<0.65
78	PAR10	3.04	<9E-01	<0.3	<2E+01	<0.66
79	RIC10	3.04	<9E-01	<0.3	<2E+01	<0.66
80	KET10	3.02	<9E-01	<0.3	<2E+01	<0.66
81	HUR10	3.36	<9E-01	<0.27	<2E+01	<0.6
82	MEN10	3.15	2.76E+01	8.76	<2E+01	<0.64
83	FRE10CO	3.00	<9E-01	<0.3	<2E+01	<0.67
84	FRE11	3.10	<9E-01	<0.29	<2E+01	<0.65
85	FRE11CO	3.05	<9E-01	<0.3	<2E+01	<0.66
86	PAR11	3.01	<9E-01	<0.3	<2E+01	<0.66
87	PAR11CO	2.96	<9E-01	<0.3	<2E+01	<0.68
88	RIC11	3.11	<9E-01	<0.29	<2E+01	<0.64
89	RIC11CO	3.04	<9E-01	<0.3	<2E+01	<0.66
90	KET11	3.03	<9E-01	<0.3	<2E+01	<0.66
91	KET11CO	2.96	<9E-01	<0.3	<2E+01	<0.68
92	HUR11	3.10	<9E-01	<0.29	<2E+01	<0.65
93	HUR11CO	2.96	<9E-01	<0.3	<2E+01	<0.68
94	MEN11	3.13	<9E-01	<0.29	<2E+01	<0.64
95	MEN11CO	3.00	<9E-01	<0.3	<2E+01	<0.67
96	FRE12	3.08	<9E-01	<0.29	<2E+01	<0.65
97	FS3ab	2.96	22.47	7.599	707.82	239.373
98	FS3bb	3.05	24.12	7.908	838.62	274.965
99	PAR12	3.04	<9E-01	<0.3	<2E+01	<0.66
100	RIC12	3.07	<9E-01	<0.29	<2E+01	<0.65
101	KET12	3.03	<9E-01	<0.3	<2E+01	<0.66
102	HUR12	3.05	<9E-01	<0.3	<2E+01	<0.66

Log #'s 69 and 83 were flagged due to possible misidentification.

Table 2

4.2 Calculated Results (continued)

Log- #	Sample ID	Total Volume m ³	Methomyl ng/sample	Methomyl ng/m ³	Reported Carbaryl ng/sample	Calculated Carbaryl ng/m ³
103	MEN12	3.164	<9E-01	<0.28	<2E+01	<0.63
104	TRIP 3	N/A	<9E-01	N/A	<18.67	N/A
105	FIELD 3	N/A	<9E-01	N/A	<18.67	N/A
106	TS-1	N/A	50.88	N/A	723.57	N/A
107	FRE13	3.114	<9E-01	<0.29	<2E+01	<0.64
108	FRE13CO	3.021	<9E-01	<0.3	<2E+01	<0.66
109	PAR13	3.051	<9E-01	<0.3	<2E+01	<0.66
110	PAR13CO	3.030	<9E-01	<0.3	<2E+01	<0.66
111	RIC13	3.052	<9E-01	<0.3	<2E+01	<0.66
112	RIC13CO	3.002	<9E-01	<0.3	<2E+01	<0.67
113	KET13	2.971	<9E-01	<0.3	<2E+01	<0.67
114	KET13CO	3.050	<9E-01	<0.3	<2E+01	<0.66
115	HUR13	3.222	<9E-01	<0.28	<2E+01	<0.62
116	HUR13CO	3.129	<9E-01	<0.29	<2E+01	<0.64
117	MEN13	3.036	<9E-01	<0.3	<2E+01	<0.66
118	MEN13CO	3.043	<9E-01	<0.3	<2E+01	<0.66
119	FLD4	N/A	<9E-01	N/A	<18.67	N/A
120	TS2	N/A	55.17	N/A	611.19	N/A
121	FRE14	3.079	<9E-01	<0.29	<2E+01	<0.65
122	SPIKE4A	2.928	20.73	70.79	717.03	244.856
123	SPIKE4B	3.043	22.98	7.552	784.2	257.726
124	PAR14	3.050	<9E-01	<0.3	<2E+01	<0.66
125	RIC14	3.050	<9E-01	<0.3	<2E+01	<0.66
126	KET14	3.021	<9E-01	<0.3	<2E+01	<0.66
127	HUR14	3.272	<9E-01	<0.28	<2E+01	<0.61
128	MEN14	3.043	<9E-01	<0.3	<2E+01	<0.66
129	FRE15	3.164	<9E-01	<0.28	<2E+01	<0.63
130	PAR15	3.050	<9E-01	<0.3	<2E+01	<0.66
131	RIC15	3.086	<9E-01	<0.29	<2E+01	<0.65
132	KET15	3.121	<9E-01	<0.29	<2E+01	<0.64
133	HUR15	3.307	<9E-01	<0.27	<2E+01	<0.61
134	MEN15	3.100	<9E-01	<0.29	<2E+01	<0.65
135	FRE16	3.150	<9E-01	<0.29	<2E+01	<0.64
136	PAR16	3.043	<9E-01	<0.29	<2E+01	<0.66

Table 2

4.2 Calculated Results (continued)

Log- #	Sample ID	Total Volume m ³	Methomyl ng/sample	Methomyl ng/m ³	Reported Carbaryl ng/sample	Calculated Carbaryl ng/m ³
137	RIC16	3.043	<9E-01	<0.3	<2E+01	<0.66
138	KET16	3.021	<9E-01	<0.3	<2E+01	<0.66
139	HUR16	3.086	<9E-01	<0.29	<2E+01	<0.65
140	MEN16	3.050	<9E-01	<0.3	<2E+01	<0.66
141	TB-4	N/A	<9E-01	N/A	<18.67	N/A
142	FRE17	2.993	<9E-01	<0.3	<2E+01	<0.67
143	FRE17CO	3.007	<9E-01	<0.3	<2E+01	<0.67
144	Spike 5A	3.079	22.14	7.192	700.26	227.467
145	Spike 5B	3.036	23.7	7.807	838.2	276.121
146	PAR17	3.050	<9E-01	<0.3	<2E+01	<0.66
147	PAR17CO	3.036	<9E-01	<0.3	<2E+01	<0.66
148	RIC17	3.028	<9E-01	<0.3	<2E+01	<0.66
149	RIC17CO	3.000	<9E-01	<0.3	<2E+01	<0.67
150	KET17	2.993	<9E-01	<0.3	<2E+01	<0.67
150	KET17	2.993	<9E-01	<0.3	<2E+01	<0.67
151	KET17CO	3.036	<9E-01	<0.3	<2E+01	<0.66
152	HUR17	3.007	<9E-01	<0.3	<2E+01	<0.67
153	HUR17CO	3.000	<9E-01	<0.3	<2E+01	<0.67
154	MEN17	3.028	<9E-01	<0.3	<2E+01	<0.66
155	MEN17CO	3.114	<9E-01	<0.29	<2E+01	<0.64
156	Trip 5	N/A	55.02	N/A	746.73	N/A
157	FRE18	3.000	<9E-01	<0.3	<2E+01	<0.67
158	PAR18	3.043	<9E-01	<0.3	<2E+01	<0.66
159	RIC18	3.050	<9E-01	<0.3	<2E+01	<0.66
160	KET18	3.052	<9E-01	<0.3	<2E+01	<0.66
161	HUR18	3.021	<9E-01	<0.3	<2E+01	<0.66
162	MEN18	3.050	<9E-01	<0.3	<2E+01	<0.66
163	FRE19	3.021	<9E-01	<0.3	<2E+01	<0.66
164	PAR19	3.050	<9E-01	<0.3	<2E+01	<0.66
165	RIC19	3.028	<9E-01	<0.3	<2E+01	<0.66
166	KET19	3.050	<9E-01	<0.3	<2E+01	<0.66
167	HUR19	3.050	<9E-01	<0.3	<2E+01	<0.66
168	MEN19	3.064	<9E-01	<0.29	<2E+01	<0.65
169	FRE20	3.071	<9E-01	<0.29	<2E+01	<0.65

Table 2

4.2 Calculated Results (continued)

Log- #	Sample ID	Total Volume m ³	Methomyl ng/sample	Methomyl ng/m ³	Reported Carbaryl ng/sample	Calculated Carbaryl ng/m ³
170	PAR20	3.093	<9E-01	<0.29	<2E+01	<0.65
171	RIC20	3.079	<9E-01	<0.29	<2E+01	<0.65
172	KET20	3.071	<9E-01	<0.29	<2E+01	<0.65
173	HUR20	3.050	<9E-01	<0.3	<2E+01	<0.66
174	MEN20	3.043	<9E-01	<0.3	<2E+01	<0.66
175	FB-5	N/A	<9E-01	N/A	<18.67	N/A
176	TB-5	N/A	<9E-01	N/A	<18.67	N/A
177	FRE21	3.062	<9E-01	<0.29	<2E+01	<0.65
178	FRE21CO	3.019	<9E-01	<0.3	<2E+01	<0.66
179	Spike 6A	3.019	13.95	4.620	702.18	232.572
180	Spike 6B	3.026	12.6	4.163	668.64	220.939
181	PAR21	3.028	<9E-01	<0.3	<2E+01	<0.66
182	PAR21CO	3.028	<9E-01	<0.3	<2E+01	<0.66
183	RIC21	3.071	<9E-01	<0.29	<2E+01	<0.65
184	RIC21CO	3.050	<9E-01	<0.3	<2E+01	<0.66
185	KET21	3.014	<9E-01	<0.3	<2E+01	<0.66
186	KET21CO	3.050	<9E-01	<0.3	<2E+01	<0.66
187	HUR21	3.021	<9E-01	<0.3	<2E+01	<0.66
188	HUR21CO	3.036	<9E-01	<0.3	<2E+01	<0.66
189	MEN21	3.050	1.24E+01	4.07	<2E+01	<0.66
190	MEN21CO	3.050	1.11E+01	3.64	<2E+01	<0.66
191	Trip 6	N/A	55.77	N/A	779.46	N/A
192	FRE22	3.045	<9E-01	<0.3	<2E+01	<0.66
193	PAR22	3.050	<9E-01	<0.3	<2E+01	<0.66
194	RIC22	3.050	<9E-01	<0.3	<2E+01	<0.66
195	KET22	3.028	<9E-01	<0.3	<2E+01	<0.66
196	HUR22	3.079	<9E-01	<0.29	<2E+01	<0.65
197	MEN22	3.028	<9E-01	<0.3	<2E+01	<0.66
198	FRE23	3.050	<9E-01	<0.3	<2E+01	<0.66
199	PAR23	3.036	<9E-01	<0.3	<2E+01	<0.66
200	RIC23	3.043	<9E-01	<0.3	<2E+01	<0.66
201	KET23	3.050	<9E-01	<0.3	<2E+01	<0.66
202	HUR23	3.050	<9E-01	<0.3	<2E+01	<0.66
203	MEN23	3.079	<9E-01	<0.29	<2E+01	<0.65

Table 2

4.2 Calculated Results (continued)

Log- #	Sample ID	Total Volume m ³	Methomyl ng/sample	Methomyl ng/m ³	Reported Carbaryl ng/sample	Calculated Carbaryl ng/m ³
205	PAR24	3.028	<9E-01	<0.3	<2E+01	<0.66
206	RIC24	3.050	<9E-01	<0.3	<2E+01	<0.66
207	KET24	3.007	<9E-01	<0.3	<2E+01	<0.67
208	HUR24	3.057	<9E-01	<0.29	<2E+01	<0.65
209	MEN24	3.036	<9E-01	<0.3	<2E+01	<0.66
210	FB-6	N/A	<9E-01	N/A	<18.67	N/A
211	TB-6	N/A	<9E-01	N/A	<18.67	N/A

The formulas below refer to Table 2 Lab Results:

$$\text{Methomyl ng/m}^3 = \frac{\text{(Methomyl ng)}}{\text{(Sample)}} \quad \frac{\text{(Sample)}}{\text{(Total Volume m}^3)} = \frac{\text{(Methomyl ng)}}{\text{(Total Volume m}^3)}$$

$$\text{Carbaryl ng/m}^3 = \frac{\text{(Carbaryl ng)}}{\text{(Sample)}} \quad \frac{\text{(Sample)}}{\text{(Total Volume m}^3)} = \frac{\text{(Carbaryl ng)}}{\text{(Total Volume m}^3)}$$

4.3 Discussion of Results

The current usage of methomyl and carbaryl has dropped from the amount reported in "Use Information and Application Monitoring Recommendations for the Pesticide Active Ingredient Methomyl and the Ambient Air Monitoring Recommendations for methomyl and carbaryl" dated June 2007.

The only methomyl measured during the six weeks of monitoring was found at the Mendota monitoring site, with a maximum 24 hour concentration of 8.8 ng/m³. No carbaryl was measured above the method detection limit (0.68 ng/ m³).

5.0 Quality Assurance Results

Quality Control samples collected from the field consisted of:

74 total collocated samples: (36 collocated pairs, plus one invalid pair (Log #33 and #34), due to power failure).

16 Spikes and Blanks: 8 Field Spikes, 8 Trip Spikes, 8 Trip Blanks.

The following bullets summarize the Quality Control results of these samples. For more detailed information, see **Table 2**, “XAD-2 Cartridge Spikes, Field and Trip Blanks Methomyl and Carbaryl Ambient Air 2007” and **Appendix C** of the Laboratory Results Report.

- Collocated sample results and their **Relative Percent Differences**. **RPD** is calculated using the following equation: $a-b \div [(a+b) \div 2] \times 100\% = \text{RPD}$. This equation is used for primary and collocated sample pairs in **Table 1**, “Monitoring Results” of this report.
- For 72 methomyl collocated pairs, only two pairs had measurable levels of methomyl greater than MDL/EQL. The **RPDs** are 18.6% (Log# 46 & 47) and 11.0% (Log# 189 & 190) with an overall average of 14.8%.
- During this study five field and five trip blanks were analyzed. Methomyl and carbaryl were not detected in either the field or trip blanks.
- Twelve field spikes were analyzed during this study. All field spikes were collected from the Fresno site. Field spike recoveries for methomyl averaged 45%, recovery ranging from 23% to 62%. Methomyl may have a lower affinity for the XAD-2 resin. This is compounded by the high affinity of methomyl for water. Thus collecting methomyl in a humid environment may reduce the effectiveness of the XAD-2 and therefore lower recoveries. The spike recoveries for carbaryl were higher, with an average of 100%, ranging from 88% to 118%.
- Five trip and five laboratory spikes were analyzed during this study. The average methomyl and carbaryl trip spike recoveries were 100 and 93% respectively, with a standard deviation of 3.86 and 8.82% for methomyl and carbaryl respectively. The average for methomyl and carbaryl laboratory spikes had an average recovery of 103 and 92% respectively, with a standard deviation of 4.88 and 5.34% for methomyl and carbaryl respectively. No anomalous events occurred with these samples.
- Five (5) Samples were flagged invalid. Four (4) invalid samples (Log #'s 33, 34, 35, and 36) were due to a power failure and one (1) invalid sample (Log#29) was flagged invalid due to being dropped and broken prior to receipt to the lab. Though log #'s 69 and 83, were due to possible mis-identification, the analytical results for both samples were less than the MDL of 0.9 ng/sample.

5.0 Quality Assurance Results (Continued)

**Table 3: XAD-2 Cartridge Spikes, Field and Trip Blanks
Methomyl and Carbaryl Ambient Air 2007**

Quality Control Type	Log Number	Laboratory ID	Date Analyzed	Methomyl amount (ng/sample)	Percent Recovery ¹	Carbaryl amount (ng/sample)	Percent Recovery ¹
Lab Spike		LS081707a	8/21/07	59.31	103.15*	748.65	84.12*
		LS082007	8/21/07	56.58	104.97	732.84	96.81
		LS082207a	9/22/07	59.25	109.93	722.61	95.46
		LS082707	9/22/07	52.35	97.12	668.19	88.27
		LS090407	9/24/07	53.91	100.02	710.52	93.86
Field Spike	35	MCA035	8/21/07	32.46	56.45*	878.49	98.71*
	36	MCA036	8/21/07	32.97	57.34*	791.94	88.98*
	70	MCA070	8/21/07	32.34	60.00	889.83	117.55
	71	MCA071	8/21/07	33.72	62.56	891.48	117.76
	97	MCA097	9/20/07	22.47	41.69	707.82	93.50
	98	MCA098	9/20/07	24.12	44.75	838.62	110.78
	122	MCA122	9/22/07	20.73	38.46	717.03	94.72
	123	MCA123	9/22/07	22.98	42.63	784.20	103.59
	144	MCA144	9/22/07	22.14	41.08	700.26	92.50
	145	MCA145	9/22/07	23.70	43.97	838.20	110.73
	179	MCA179	9/24/07	13.95	25.88	702.18	92.76
	180	MCA180	9/24/07	12.60	23.38	668.64	88.33
Trip Spike	37	MCA037	9/19/07	56.04	97.46*	785.04	88.21*
	106	MCA106	9/20/07	50.88	94.40	723.57	95.58
	120	MCA120	9/23/07	55.17	102.36	611.19	80.74
	156	MCA156	9/23/07	55.02	102.08	746.73	98.64
	191	MCA191	9/25/07	55.77	103.47	779.46	102.97

5.0 Quality Assurance (Continued)

**Table 3: XAD-2 Cartridge Spikes, Field and Trip Blanks
Methomyl and Carbaryl Ambient Air 2007**

Trip Blank	68	MCA68	9/27/07	<0.79
	104	MCA104	9/28/07	<0.79
	141	MCA141	10/1/07	<0.79
	176	MCA176	10/3/07	<0.79
	211	MCA211	10/4/07	<0.79

<18.67
<18.67
<18.67
<18.67
<18.67

Field Blank	67	MCA67	9/27/07	<0.79
	105	MCA105	9/28/07	<0.79
	119	MCA119	9/30/07	<0.79
	175	MCA175	10/3/07	<0.79
	210	MCA210	10/4/07	<0.79

<18.67
<18.67
<18.67
<18.67
<18.67

Notes:

1 Field Spike levels not background subtracted.

ID Identification

ng Nanograms

* Spiked at the 57.5 and 890 ng/sample for methomyl and carbaryl

The field spike recoveries for methomyl were low. Laboratory staff provided the following explanation for these results:

At the time it was noted that method development spikes and breakthrough studies indicate fair to good recoveries for methomyl. Lab and Trip spikes also had good recoveries for methomyl. Thus as in other projects the field spike samples had lower than expected recoveries. At the time of this project the spiked cartridges were made by simply spiking a known amount of analyte onto the XAD-2 cartridge using a liquid carrier. These are then taken to the field and the ambient air is sampled. It has been noted before that the field collection process or environment is very different from the lab and 13th and T air monitoring station environment. There could be humidity, temperature, and air composition differences at the field site when compared to 13th and T. These condition could then have an adverse affect on the collection medium (XAD-2) and could lead to lower recoveries. As noted in the reports one possibility could be the humidity and the affinity of XAD-2 for water as compared to methomyl and this competition leads to lower recoveries.

APPENDIX A

Site Photographs

APPENDIX B

Sampling Protocol

APPENDIX C

Laboratory Results Report

APPENDIX D

Field Log Sheets

Field Log Sheets

Sample Log Sheet for Methomyl/Carbaryl Application and Ambient Air Monitoring

APPENDIX D

Field Log Sheets (continued)

Sample Log Sheet for Methomyl/Carbaryl Application and Ambient Air Monitoring								
Week 2								
Log- #	Sample ID	Start Date/Time	End Date/Time	Sample Flow (Start)	Sample Flow (Stop)	ETM Start	ETM Stop	Rotameter # and Comments
33	FRE5	7-30 / 0710	7-31 / 0710	2.00	1.91	96.6	109.3	J3 Power Outage
34	FRE5CO	7-30 / 0710	7-31 / 0710	2.00	1.98	96.6	109.3	1A Power Outage
35	FS1	7-30 / 0710	7-31 / 0710	2.00	2.00	96.6	109.3	13 Power Outage
36	FS2	7-30 / 0710	7-31 / 0710	2.00	2.03	96.6	109.3	10A Power Outage
37	TS1	N/A	N/A	N/A	N/A	N/A	N/A	Trip Spike
38	PAR5	7-30 / 0805	7-31 / 0805	2.00	2.04	96.7	120.7	L3
39	PAR5CO	7-30 / 0805	7-31 / 0805	2.00	2.05	96.7	120.7	9B
40	RIC5	7-30 / 0950	7-31 / 0950	2.00	2.08	3334.4	3358.4	1B
41	RIC5CO	7-30 / 0950	7-31 / 0950	2.00	2.06	3334.4	3358.4	54
42	KET5	7-30 / 1125	7-31 / 1125	2.00	1.97	4628.0	4662.0	M3
43	KET5CO	7-30 / 1125	7-31 / 1125	2.00	1.96	4638.0	4662.0	2B
44	HUR5	7-30 / 1150	7-31 / 1150	2.00	2.13	3892.7	3916.7	E3
45	HUR5CO	7-30 / 1150	7-31 / 1150	2.00	1.98	3892.7	3916.7	H3
46	MEN5	7-30 / 1310	7-31 / 1310	2.00	2.10	5313.7	5337.7	K3
47	MEN5CO	7-30 / 1310	7-31 / 1310	2.00	1.98	5313.7	5337.7	6A
48	FRE6	7-31 / 0710	8-1 / 0710	2.00	1.94	109.3	133.3	J3
49	FRE6CO	7-31 / 0710	8-1 / 0710	2.00	1.90	109.3	133.3	1A Make-up 7-30 Power Out
50	PAR6	7-31 / 0805	8-1 / 0805	2.00	2.00	120.7	144.7	L3
51	RIC6	7-31 / 0950	8-1 / 0950	2.00	2.02	3358.4	3382.4	1B
52	KET6	7-31 / 1125	8-1 / 1125	2.00	2.00	4662.0	4686.0	M3
53	HUR6	7-31 / 1150	8-1 / 1150	2.00	2.02	3916.7	3940.7	E3
54	MEN6	7-31 / 1310	8-1 / 1310	2.00	1.98	5337.7	5361.7	K3
55	FRE7	8-1 / 0710	8-2 / 0710	2.00	1.91	133.3	157.3	J3
56	PAR7	8-1 / 0805	8-2 / 0805	2.00	1.98	144.7	168.7	L3
57	RIC7	8-1 / 0950	8-2 / 0950	2.00	1.95	3382.4	3496.4	1B
58	KET7	8-1 / 1125	8-2 / 1125	2.00	2.03	4686.4	4710.0	M3
59	HUR7	8-1 / 1150	8-2 / 1150	2.00	2.00	3940.7	3964.7	E3
60	MEN7	8-1 / 1310	8-2 / 1310	2.00	2.10	5361.7	5385.7	K3
61	FRE8	8-2 / 0710	8-3 / 0710	2.00	2.01	157.3	181.3	J3
62	PAR8	8-2 / 0805	8-3 / 0805	2.00	1.99	168.7	192.7	L3
63	RIC8	8-2 / 0950	8-3 / 0950	2.00	1.98	3406.4	3430.4	1B
64	KET8	8-2 / 1125	8-3 / 1125	2.00	2.01	4710.0	3734.0	M3
65	HUR8	8-2 / 1150	8-3 / 1150	2.00	2.02	3964.7	3988.7	E3
66	MEN8	8-2 / 1310	8-3 / 1310	2.00	2.00	5385.7	5409.7	K3
67	FB-2	N/A	8-3 / 1310	N/A	N/A	N/A	N/A	Field Blank 6A
68	TB-2	N/A	8-3 / 1310	N/A	N/A	N/A	N/A	Trip Blank

APPENDIX D

Field Log Sheets (continued)

Sample Log Sheet for Methomyl/Carbonyl Application and Ambient Air Monitoring								
Week 3								
Log- #	Sample ID	Start Date/Time	End Date/Time	Sample Flow (Start)	Sample Flow (Stop)	ETM Start	ETM Stop	Rotameter # and Comments
69	FRE9	8-06 / 0724	8-07 / 0724	2.00	2.13	181.4	205.4	J3 Flagged May be clean
70	FS3A	8-06 / 0724	8-07 / 0724	2.00	1.87	181.4	205.4	1 3 Field Spike
71	FS3B	8-06 / 0724	8-07 / 0724	2.00	1.92	181.4	205.4	10A Field Spike
72	PAR9	8-06 / 0807	8-07 / 0807	2.00	2.00	192.7	216.7	L3
73	RIC9	8-06 / 0943	8-07 / 0943	N/A	1.99	3430.4	3454.4	1B
74	KET9	8/06 / 1134	8/07 / 1134	2.00	2.00	3734.2	4758.2	M3
75	HUR9	8/06 / 1206	8/07 / 1206	2.00	2.26	3988.7	4012.7	E3
76	MEN9	8/06 / 1308	8/07 / 1308	2.00	2.03	3409.7	5433.7	K3
77	FRE10	8-07 / 0724	8-08 / 0724	2.00	2.06	205.4	229.4	J3
78	PAR10	8-07 / 0807	8-08 / 0807	2.00	1.99	216.7	240.7	L3
79	RIC10	8-07 / 0943	8-08 / 0943	2.00	1.99	3454.4	3478.4	1B
80	KET10	8/07 / 1134	8/08 / 1134	2.00	1.96	4758.2	4782.2	M3
81	HUR10	8/07 / 1206	8/08 / 1206	2.00	2.43	4012.7	4036.7	E3
82	MEN10	8/07 / 1308	8/08 / 1308	2.00	2.14	5433.7	5457.7	K3
83	FRE10CO	8-07 / 0724	8-08 / 0724	2.00	1.93	205.4	229.4	6A Flagged May be 2 days
84	FRE11	8-08 / 0724	8-09 / 0724	2.00	2.07	229.4	253.4	J3
85	FRE11CO	8-08 / 0724	8-09 / 0724	2.00	2.00	229.4	253.4	1A
86	PAR11	8-08 / 0807	8-09 / 0807	2.00	1.95	240.7	264.7	L3
87	PAR11CO	8-08 / 0807	8-09 / 0807	2.00	1.88	240.7	264.7	9B
88	RIC11	8-08 / 0943	8-09 / 0943	2.00	2.09	3478.4	3502.4	1B
89	RIC11CO	8-08 / 0943	8-09 / 0943	2.00	1.98	3478.4	3502.4	5 9
90	KET11	8/08 / 1134	8/09 / 1134	2.00	1.97	4782.2	4806.2	M3
91	KET11CO	8/08 / 1134	8/09 / 1134	2.00	1.92	4782.5	4806.2	2B
92	HUR11	8/08 / 1206	8/09 / 1206	2.00	2.07	4036.7	4060.7	E3
93	HUR11CO	8/08 / 1206	8/09 / 1206	2.00	1.88	4036.7	4060.7	H3
94	MEN11	8/08 / 1308	8/09 / 1308	2.00	2.11	5457.7	5481.7	L3
95	MEN11CO	8/08 / 1308	8/09 / 1308	2.00	1.93	5457.7	5481.7	6A
96	FRE12	8-09 / 0724	8-10 / 0724	2.00	2.04	253.4	277.4	J3
97	FS3ab	8-09 / 0724	8-10 / 0724	2.00	1.87	253.4	277.4	L3
98	FS3bb	8-09 / 0724	8-10 / 0724	2.00	2.00	253.4	277.4	10A
99	PAR12	8-09 / 0807	8-10 / 0807	2.00	1.98	264.7	288.7	L3
100	RIC12	8-09 / 0943	8-10 / 0943	2.00	2.03	3502.4	3526.4	1B
101	KET12	8/09 / 1134	8/10 / 1134	2.00	1.97	4806.2	4830.2	M3
102	HUR12	8/09 / 1206	8/10 / 1206	2.00	2.00	4060.7	4084.7	E3
103	MEN12	8/09 / 1308	8/10 / 1308	2.00	2.16	5481.7	5505.7	K3
104	TRIP 3	N/A	8-10 / 1410	N/A	N/A	N/A	N/A	Trip Blank
105	FIELD 3	N/A	8-10 / 1410	N/A	N/A	N/A	N/A	Field Blank
106	TS-1	N/A	8-10 / 1410	N/A	N/A	N/A	N/A	Trip Spike

APPENDIX D

Field Log Sheets (continued)

Sample Log Sheet for Methomyl/Carbonyl Application and Ambient Air Monitoring								
Week 4								
Log- #	Sample ID	Start Date/Time	End Date/Time	Sample Flow (Start)	Sample Flow (Stop)	ETM Start	ETM Stop	Rotameter # and Comments
107	FRE13	8-13 / 0700	8-14 / 0700	2.00	2.09	277.4	301.4	J3
108	FRE13CO	8-13 / 0700	8-14 / 0700	2.00	1.96	277.4	301.4	1A
109	PAR13	8-13 / 0726	8-14 / 0738	2.00	2.00	288.8	312.8	L3
110	PAR13CO	8-13 / 0726	8-14 / 0738	2.00	1.97	288.8	312.8	9B
111	RIC13	8/13 / 0905	8-14 / 0905	2.00	2.01	3526.4	3550.4	1B
112	RIC13CO	8/13 / 0905	8-14 / 0905	2.00	1.94	3526.4	3550.4	5 9
113	KET13	8/13 / 1103	8/14 / 1103	2.00	1.89	4830.2	4854.2	M3
114	KET13CO	8/13 / 1103	8/14 / 1103	2.00	2.00	4830.2	4854.2	2B
115	HUR13	8-13 / 1138	8-14 / 1138	2.00	2.24	4084.7	4108.7	E3
116	HUR13CO	8-13 / 1138	8-14 / 1138	2.00	2.11	4084.7	4108.7	H3
117	MEN13	8-13 / 1239	8-14 / 1239	2.00	1.98	5505.7	5529.7	K3
118	MEN13CO	8-13 / 1239	8-14 / 1239	2.00	1.99	5505.7	5529.7	6A
119	FLD4	8-13 / 1248	N/A	N/A	N/A	N/A	N/A	Field Blank
120	TS2	8-13 / 1253	N/A	N/A	N/A	N/A	N/A	Trip Spike
121	FRE14	8-14 / 0700	8-15 / 0700	2.00	2.04	301.4	325.4	J3
122	SPIKE4A	8-14 / 0700	8-15 / 0700	2.00	1.83	301.4	325.4	I3
123	SPIKE4B	8-14 / 0700	8-15 / 0700	2.00	1.99	301.4	325.4	10A
124	PAR14	8-14 / 0738	8-15 / 0738	2.00	2.00	312.8	336.8	L3
125	RIC14	8-14 / 0905	8/15 / 0905	2.00	2.00	3550.4	3574.4	1B
126	KET14	8/14 / 1103	8/15 / 1103	2.00	1.96	4854.2	4878.2	2B
127	HUR14	8-14 / 1138	8/15 / 1138	2.00	2.31	4108.7	4132.7	E3
128	MEN14	8-14 / 1239	8-15 / 1239	2.00	1.99	5529.7	5553.7	K3
129	FRE15	8/15 / 0700	8-16 / 0700	2.00	2.16	325.4	349.4	J3
130	PAR15	8-15 / 0738	8-15 / 0738	2.00	2.00	336.8	360.8	L3
131	RIC15	8/15 / 0905	8-15 / 0905	2.00	2.05	3574.4	3598.4	1B
132	KET15	8/15 / 1103	8-15 / 1103	2.00	2.10	4878.2	4902.2	2B
133	HUR15	8/15 / 1138	8/15 / 1138	2.00	2.36	4132.7	4156.7	E3
134	MEN15	8-15 / 1239	8/15 / 1239	2.00	2.07	5553.7	5577.7	K3
135	FRE16	8-16 / 0700	8-10 / 0724	2.00	2.14	349.4	373.4	J3
136	PAR16	8-15 / 0738	8-10 / 0724	2.00	1.99	360.8	384.8	L3
137	RIC16	8-15 / 0905	8-10 / 0807	2.00	1.99	3598.4	3622.4	I1B
138	KET16	8-15 / 1103	8-10 / 0943	2.00	1.96	4902.2	4926.2	2B
139	HUR16	8/15 / 1138	8/10 / 1134	2.00	2.05	4156.7	4180.7	E3
140	MEM16	8/15 / 1239	8/10 / 1206	2.00	2.00	5577.7	5601.7	K3
141	TB-4	8/17 / 0700	N/A	N/A	N/A	N/A	N/A	Trip Blank

APPENDIX D

Field Log Sheets (continued)

Sample Log Sheet for Methomyl/Carbonyl Application and Ambient Air Monitoring								
Week 5								
Log- #	Sample ID	Start Date/Time	End Date/Time	Sample Flow (Start)	Sample Flow (Stop)	ETM Start	ETM Stop	Rotameter # and Comments
142	FRE17	8-20 / 0715	8-21 / 0715	2.00	1.92	373.4	397.4	J3
143	FRE17CO	8-20 / 0715	8-21 / 0715	2.00	1.94	373.4	397.4	1A
144	Spike 5A	8-20 / 0715	8-21 / 0715	2.00	2.04	373.4	397.4	I3 Field Spike
145	Spike 5B	8-20 / 0715	8-21 / 0715	2.00	1.98	373.4	397.4	10A Field Spike
146	PAR17	8/20 / 0755	8-21 / 0755	2.00	2.00	384.8	408.8	L3
147	PAR17CO	8/20 / 0755	8-21 / 0755	2.00	1.98	384.8	408.8	9B
148	RIC17	8/20 / 0925	8/21 / 0925	2.00	1.97	3622.4	3646.4	1B
149	RIC17CO	8/20 / 0925	8/21 / 0925	2.00	1.93	3622.4	3646.4	5 9
150	KET17	8-20 / 1050	8-21 / 1050	2.00	1.92	4926.1	4950.1	M3
151	KET17CO	8-20 / 1050	8-21 / 1050	2.00	1.98	4926.1	4950.1	2B
152	HUR17	8-20 / 1125	8-21 / 1125	2.00	1.94	4180.7	4204.7	E3
153	HUR17CO	8-20 / 1125	8-21 / 1125	2.00	1.93	4180.7	4204.7	H3
154	MEN17	8-20 / 11230	8-21 / 1230	2.00	1.97	5601.7	5625.7	K3
155	MEN17CO	8-20 / 11230	8-21 / 1230	2.00	2.09	5601.7	5625.7	6A
156	Trip 5	N/A	N/A	N/A	N/A	N/A	N/A	Trip Spike
157	FRE18	8-21 / 0715	8-22 / 0715	2.00	1.93	397.4	421.4	J3
158	PAR18	8-21 / 0755	8-22 / 0755	2.00	1.99	408.8	432.8	L3
159	RIC18	8-21 / 0925	8-22 / 0925	2.00	2.00	3646.4	3670.4	1B
160	KET18	8-21 / 1050	8-22 / 1050	2.00	1.95	4950.1	3574.4	M3
161	HUR18	8/21 / 1125	8/22 / 1125	2.00	1.96	4204.7	4228.7	K3
162	MEN18	8-21 / 1230	8-22 / 1230	2.00	2.00	5625.7	5649.7	6A
163	FRE19	8-22 / 0715	8-23 / 0715	2.00	1.96	421.4	445.4	J3
164	PAR19	8-22 / 0755	8-23 / 0755	2.00	2.00	432.8	456.8	L3
165	RIC19	8-22 / 0925	8-23 / 0925	2.00	1.97	3670.4	3694.4	1B
166	KET19	8-22 / 1050	8-23 / 1050	2.00	2.00	4974.1	4998.1	M3
167	HUR19	8/22 / 1125	8/23 / 1125	2.00	2.00	4228.7	4252.7	K3
168	MEN19	8-22 / 1230	8-23 / 1230	2.00	2.02	5649.7	5673.7	6A
169	FRE20	8-23 / 0715	8-24 / 0715	2.00	2.03	445.4	469.4	J3
170	PAR20	8-23 / 0755	8-24 / 0755	2.00	2.06	456.8	480.8	L3
171	RIC20	8-23 / 0925	8-24 / 0925	2.00	2.04	4694.4	4718.4	1B
172	KET20	8-23 / 1050	8-24 / 1050	2.00	2.03	4998.1	5022.1	M3
173	HUR20	8/23 / 1125	8/24 / 1125	2.00	2.00	4252.7	4276.7	K3
174	MEN20	8-23 / 1230	8-24 / 1230	2.00	1.99	5673.7	5697.7	6A
175	FB-5	N/A	8-24 / 1230	N/A	N/A	N/A	N/A	Field Blank
176	TB-5	N/A	N/A	N/A	N/A	N/A	N/A	Trip Blank

APPENDIX D

Field Log Sheets

Field Log Sheets (continued)

Sample Log Sheet for Methomyl/Carbonyl Application and Ambient Air Monitoring								
Week 6								
Log- #	Sample ID	Start Date/Time	End Date/Time	Sample Flow (Start)	Sample Flow (Stop)	ETM Start	ETM Stop	Rotameter # and Comments
177	FRE21	8-27 / 0715	8-28 / 0715	2.00	2.01	469.4	493.4	J3
178	FRE21CO	8-27 / 0715	8-28 / 0715	2.00	1.95	469.4	493.4	1A
179	Spike 6A	8-27 / 0715	8-28 / 0715	2.00	1.95	469.4	493.4	I3 Field Spike
180	Spike 6B	8-27 / 0715	8-28 / 0715	2.00	1.96	469.4	493.4	10A Field Spike
181	PAR21	8/27 / 0755	8-28 / 0755	2.00	1.97	480.8	504.8	L3
182	PAR21CO	8/27 / 0755	8-28 / 0755	2.00	1.97	480.8	504.8	9B
183	RIC21	8/27 / 0925	8/28 / 0925	2.00	2.03	4718.4	4742.4	1B
184	RIC21CO	8/27 / 0925	8/28 / 0925	2.00	2.00	4718.4	4742.4	5 9
185	KET21	8-27 / 1050	8-28 / 1050	2.00	1.95	5022.1	5046.1	M3
186	KET21CO	8-27 / 1050	8-28 / 1050	2.00	2.00	5022.1	5046.1	2B
187	HUR21	8-27 / 1125	8-28 / 1125	2.00	1.96	4276.7	4300.7	E3
188	HUR21CO	8-27 / 1125	8-28 / 1125	2.00	1.98	4276.7	4300.7	H3
189	MEN21	8-27 / 11230	8-28 / 1230	2.00	2.00	5697.7	5721.7	K3
190	MEN21CO	8-27 / 11230	8-28 / 1230	2.00	2.00	5697.7	5721.7	6A
191	Trip 6	N/A	N/A	N/A	N/A	N/A	N/A	Trip Spike
192	FRE22	8-28 / 0715	8-29 / 0715	2.00	2.00	493.4	517.4	J3
193	PAR22	8-28 / 0755	8-29 / 0755	2.00	2.00	504.8	428.8	L3
194	RIC22	8-28 / 0925	8-29 / 0925	2.00	2.00	4742.4	4766.4	1B
195	KET22	8-28 / 1050	8-29 / 1050	2.00	1.97	5046.1	5070.1	M3
196	HUR22	8/28 / 1125	8/29 / 1125	2.00	2.04	4300.8	4324.8	E3
197	MEN22	8-28 / 1230	8-29 / 1230	2.00	1.97	5721.7	5745.7	K3
198	FRE23	8-29 / 0715	8-30 / 0715	2.00	2.00	517.4	541.4	J3
199	PAR23	8-29 / 0755	8-30 / 0755	2.00	1.98	528.8	552.8	L3
200	RIC23	8-29 / 0925	8-30 / 0925	2.00	1.99	4766.4	4790.4	1B
201	KET23	8-29 / 1050	8-30 / 1050	2.00	2.00	5070.1	5094.1	E3
202	HUR23	8/29 / 1125	8/30 / 1125	2.00	2.00	4324.8	4348.8	K3
203	MEN23	8-29 / 1230	8-30 / 1230	2.00	2.04	5745.7	5769.7	J3
204	FRE24	8-30 / 0715	8-31 / 0715	2.00	1.94	541.4	565.4	J3
205	PAR24	8-30 / 0755	8-31 / 0755	2.00	1.97	552.8	576.8	L3
206	RIC24	8-30 / 0925	8-31 / 0925	2.00	2.00	4790.4	4814.4	1B
207	KET24	8-30 / 1050	8-31 / 1050	2.00	1.94	5094.1	5118.1	M3
208	HUR24	8/30 / 1125	8/31 / 1125	2.00	2.01	4348.8	4372.8	E3
209	MEN24	8-30 / 1230	8-31 / 1230	2.00	1.98	5769.7	5793.7	K3
210	FB-6	N/A	8-31 / 1230	N/A	N/A	N/A	N/A	Field Blank
211	TB-6	N/A	N/A	N/A	N/A	N/A	N/A	Trip Blank

APPENDIX D

Field Log Sheets

APPENDIX E

Calibration/Certification Reports

CALIFORNIA AIR RESOURCES BOARD

FLOW CALIBRATION REPORT

SPECIAL PURPOSE MONITORING
NEIL ADLER

LOG NUMBER 2007 154

FROM ROBERT RUSSELL\BRIAN SPREADBOROUGH
Program Evaluation & Standards

CALIBRATION DATE: 07/10/2007
REPORT DATE : 07/10/2007

IDENTIFICATION

Instrument : AALBORG
Position number : 1
Property No. : 20062240 Site Name : MLD Standards Lab
Serial No. : 20062240 Site Number : 34-299
Previous Log No.: N/A Location : 1309 T-Street
Bar Code No. : 20062240 Sacramento, CA 95814
Elevation : 25.00'
Inst. Prop. Of : AIR MONITORING - CENTRAL

CALIBRATION STANDARDS	ID NUMBER
molbox	20062240

CALIBRATION RESULTS

Component	FLOW
Instrument Range	0-5 SLIM
Initial Zero Setting	
Initial Span Setting	
Final Zero Setting	
Final Span Setting	
Slope	1.007
Intercept	-0.133
Correlation Coefficient	0.99989
Change From Previous Calibration (%)	N/A
Date Of Last Calibration	N/A

Calibration Equation:

Calibration Expires: 07/09/2008

FLOW = 0.993 * (Net Display) + 0.132

Comments:

CALIBRATED BY: NR

CHECKED BY: R.R.